DOCUMENT RESUME

ED 388 321 IR 055 826

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TITLE Electronic Journals in ARL Libraries: Issues and Trends. SPEC Kit 202 and Flyer 202.
INSTITUTION Association of Research Libraries, Washington, D.C. Office of Management Services.
REPORT NO ISSN-0160-3582
PUB DATE Aug 94
NOTE 175p.; An errata sheet that corrects the flyer is included. For companion Kit 201, see IR 055 825.
AVAILABLE FROM ARL Publications Department, Association of Research Libraries, Suite 800, 21 Dupont Circle, N.W., Washington, DC 20036.
PUB TYPE Guides - Non-Classroom Use (055) -- Reports - Evaluative/Feasibility (142) -- Reports - Research/Technical (143)

EDRS PRICE MF01/PC07 Plus Postage.
DESCRIPTORS *Access to Information; Archives; Copyrights; Full Text Databases; Guides; Higher Education; *Library Collection Development; Library Material Selection; Library Networks; *Library Services; Pamphlets; *Research Libraries; *Scholarly Journals; Surveys; *Trend Analysis
IDENTIFIERS *Electronic Journals; Internet

ABSTRACT

The possibility of producing journal articles in electronic form is creating a revolution in scholarly communication. A number of research libraries are investigating or offering local and remote access to electronic journals. Because Internet access to a journal may not be available at the time of need, a prime collection development issue is the identification of titles that warrant local acquisition and archival retention. As the number of journals increases, copyright and licensing agreements may limit the open access now possible. Systems designed for storage and patron access to local and remote storage are among the challenges related to access and cost that research libraries will have to face. A survey was sent to 119 members of the Association of Research Libraries (ARL) to explore their policies and procedures with respect to electronic journals. Along with survey responses, the ARL received task force reports related to electronic journals from: (1) the University of Alberta (Canada); (2) the University of California-Berkeley; (3) Cornell University (New York); (4) the University of Nebraska-Lincoln; (5) the University of Tenenssee-Knoxville; (6) Northwestern University (Illinois); and (7) Virginia Polytechnic Institute and State University. A list of 78 selected readings is included. (SLD)

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SPEC

SYSTEMS AND PROCEDURES EXCHANGE CENTER

Kit 202

Electronic Journals in ARL Libraries: Issues and Trends

ED 388 321

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ERRATA

October, 1994

SPEC Kit #202
Electronic Journals in ARL Libraries: Issues and Trends

The SPEC Flyer bound into the front of this SPEC Kit has an error on page two. Please replace the bound flyer with the one attached. We appologize for this inconvenience.

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202 296 8656 FAX 202 872 0884

SYSTEMS AND PROCEDURES EXCHANGE CENTER

Flyer 202

Electronic Journals in ARL Libraries: Issues and Trends

August 1994

INTRODUCTION

As early as 1982 journal articles in information science documented initial experiments with electronic publishing and created the expectation of a revolution in scholarly communication. Almost a decade later (July 1991), the Association of Research Libraries issued the first edition of its *Directory of Electronic Journals, Newsletters and Academic Discussion Lists*, listing over 500 scholarly lists, about 30 journals, over 60 newsletters, and 15 other titles. With the migration of Bitnet and Internet access from laboratories and computer centers into libraries and faculty offices, the electronic distribution of scholarly journals has accelerated. The 1994 edition of the *Directory* lists 1800 scholarly lists, and 440 electronic journals, newsletters, and other titles. This represents a 70% increase since the third edition of April 1993 and a 350% growth since the first edition of July 1991.

Electronic journals are typically issued in electronic format only and are made available over the Internet or major networks such as BITNET. Scholarly electronic journals generally originate in academic institutions, are usually free of charge to subscribers, and attempt to imitate the basic features of print serials: table of contents, numerically defined issues, articles, reviews, ISSN#. In addition to scholarly titles, the Committee on Institutional Cooperation (CIC) has chosen to include in their CICNet archive electronic newsletters, newspapers and zines (small independently published magazines) and exclude discussion-oriented e-mail from a news group or listserv.

TASK FORCE REPORTS

A significant number of research libraries are either investigating or offering local and remote access to electronic journals. The appointment of a representative task force is the typical method for determining how a library should handle electronic journals. The task force reports included in this SPEC Kit were collected as part of a SPEC survey sent to 119 members of the Association of Research Libraries (ARL) in early 1994. The results of the survey, outlining organizational issues, are presented in companion SPEC Kit #201, *Electronic Journals in ARL Libraries: Policies and Procedures.*

ARL libraries are pioneers in providing access to electronic journals. The task force reports created by the libraries at Cornell University, Massachusetts Institute of Technology, Virginia Polytechnic Institute, University of Tennessee, University of Alberta, and the University of California-Berkeley are important documents which identify critical issues and strategies.

ISSUES AND TRENDS

Several trends have affected and will continue to influence how research libraries plan for electronic journals. Gopher, WAIS, and World Wide Web software have enabled remote access, thus allowing libraries to avoid an institutional subscription and local processing. Because Internet access to a journal issue may not be available at the time of need, the prime collection development issue is the identification of titles which warrant local acquisition and archival retention. As the number of electronic journals increases and the Internet environment changes, copyright/licensing agreements may limit the open navigating which is now possible. The research library still has the opportunity and the responsibility to maintain electronic files locally. As technology continues to change, the preservation of these and other electronic texts will require experimentation to assess results. Research libraries will be expected to lead the way in resolving the preservation issues.

The systems design for storage and access is another related concern. The use of a client/server system instead of a mainframe provides options for storing journal files and has implications for hardware and software selection. The amount of storage space required depends upon the number and size of issues and will undoubtedly increase with the demand for additional holdings. A partnership between the library and the campus computing center is a necessity for the best application of campus resources. Similarly, the creation of consortia, such as the CIC, for sharing a computer network and electronic files offers certain benefits.

Patron access to electronic journals is a major issue for both local and remote storage. It is standard to provide a bibliographic record on the library's online catalog, but there are still challenges for linking this access to a table of contents or full-text file. Despite the enhanced access made possible by gopher servers such as CIC's, electronic journals are still not easy to find on the Internet.

A user must have an Internet account, basic Internet searching skills, patience, and adequate equipment for downloading and/or printing. The user must also know that a particular article exists or be willing to browse the cryptic headings of ftp sites. Traditional journal indexes do not yet cover electronic journal articles in a systematic or comprehensive way, although some are investigating how to do this. There are also new published and electronic finding aids, such as ARL's *Directory of Electronic Journals, Newsletters and Academic Discussion Lists* and NewJour-L listserv, being developed.

Several barriers have deterred the migration of traditional print journals to electronic format. Publishers are exploring how best to charge for electronic publications in order to maintain profitability and manage copyright and royalties. When successful charging mechanisms exist, more journals will likely convert. The system used by commercial document delivery services might also work for electronic journals.

Other deterrents have been text formatting and lack of standards. Print journals have aesthetically pleasing and specialized text fonts and illustrations. Plain ASCII text, the lowest standard for Internet transmission, lacks the formatting that users are accustomed to. Electronic journals with PostScript or bitmapped formatting, such as OCLC's Online Journal of Current Clinical Trials, require special or proprietary display software. Text format influences the type of hardware required for viewing and printing, which in turn has budget implications. Cooperative projects such as the one involving the American Chemical Society, Cornell, Bellcore, and OCLC will help define how print journals with graphics should be converted to electronic form. Additional collaborative projects with publishers are needed to determine whether the electronic format is appropriate or desirable for specific titles.

Use of the Internet is currently growing astronomically. As faculty familiarity and expertise grow, the demand for electronic scholarly journals and other resources will also increase. The prestige and legitimacy of publishing in electronic journals should develop concurrently.

CONCLUSION

Between 1991 and 1994 there was a marked growth in the number of electronic journals, most of which were new publications with some developing out of discussion lists. The decade of the 1990s will continue to be an era of experimentation, with research libraries individually and collectively involved in providing local and remote access to electronic journals. Challenges exist with cost models, text display, standards, preservation, and technological change. The opportunity to address these challenges, so that scholarship can be created and disseminated in new ways, belongs to the research library.

This Kit and Flyer was prepared by Elizabeth Parang, Head Serials Librarian, and Laverna Saunders, Assistant University Librarian for Technical Services, University of Nevada, Las Vegas, and was prepared as part of the OMS Collaborative Research/Writing Program.

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Flyer 202

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August 1994

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SYSTEMS AND PROCEDURES EXCHANGE CENTER

Electronic Journals in ARL Libraries: Issues and Trends

A SPEC Kit compiled by

Elizabeth Parang
and
Laverna Saunders
University of Nevada, Las Vegas

August 1994

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SPEC Kits are published by the
Association of Research Libraries
Office of Management Services
21 Dupont Circle, NW
Washington, DC 20036
(202)296-8656
FAX (202)872-0884

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Systems and Procedures Exchange Center: Supporting Effective Library Management for Over Twenty Years

The ARL Office of Management Services has served the library community for over twenty years with programs and publications geared toward improving performance in library management. The SPEC program was established in 1973 to identify expertise and encourage its exchange among library staff through an on-going survey and review process. Originally established as an information source for ARL member libraries, the SPEC program has grown to serve the needs of the library community world-wide.

What are SPEC Kits and Flyers?

Published ten times per year, SPEC Kits and Flyers contain the most valuable, up-to-date information on the latest issues of concern to libraries and librarians today. SPEC Kits and Flyers are the result of a program of surveys on a variety of topics related to current practice and management of library programs in the ARL membership. The SPEC Flyer is a two-page summary of the status of a current area of interest. It comments on the present situation, reports on the results of an ARL membership survey, and forecasts future trends. The SPEC Kit contains the SPEC Flyer and the best representative supporting documentation from the survey in the form of policy statements, handbooks, manuals, cost studies, user studies, procedure statements, planning materials, and issue summaries. A valuable feature of each SPEC Kit is its selected reading list containing the most current literature available on the topic for further study.

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Subscribers tell us that the information contained in SPEC Kits and Flyers is valuable to a variety of users, both inside and outside the library. The SPEC Flyer is an inexpensive current awareness tool for keeping up-to-date on important library management topics. The documentation found in SPEC Kits is a good point of departure for research and problem solving. SPEC Kits and Flyers lend immediate authority to proposals and aid in setting standards for designing programs or writing procedure statements. SPEC Kits function as an important reference tool for library administrators, staff, students, and professionals in allied disciplines who may not have access to this kind of information.

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SYSTEMS AND PROCEDURES EXCHANGE CENTER

Kit 202

Electronic Journals
in ARL Libraries:
Issues and Trends

August 1994

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SYSTEMS AND PROCEDURES EXCHANGE CENTER

SURVEY RESULTS

ASSOCIATION OF RESEARCH LIBRARIES
OFFICE OF MANAGEMENT SERVICES

TO: SPEC Liaisons

FROM: C. Brigid Welch, Director of Information Services CBW
Ann Okerson, Director, ARL Office of Scientific and Academic Publishing

DATE: 13 January 1994

SUBJ: SPEC Survey on Electronic Journals in ARL Libraries

We are seeking your assistance in completing this important SPEC survey on the policies and practices of ARL libraries in acquiring and providing access to electronic journals. This survey was originally developed by Laverna Saunders, Assistant University Librarian for Technical Services, and Elizabeth Parang, Cataloging Librarian, University of Nevada-Las Vegas to poll the academic libraries in AMIGOS and has been adapted for use by the ARL Working Group on Electronic Serials: Acquisition, Storage, Dissemination, and Service to gather benchmark data on electronic journal collections in ARL Libraries.

In addition, the data gathered in this survey will be used to publish a SPEC kit on electronic journals in ARL libraries in the summer of 1994. We would appreciate receiving any relevant documentation related to the acquisition and management of electronic journals along with your survey response. Your prompt response to this survey would be appreciated by **17 February 1994**. A self-addressed, postage paid envelope has been enclosed for your use in returning your survey response and documents.

Thank you for your assistance. Please contact us by phone or email (brigid@cni.org or ann@cni.org) if you have questions or comments.

CBW/

enc.

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ASSOCIATION OF RESEARCH LIBRARIES

OFFICE OF MANAGEMENT SERVICES

SPEC SURVEY--ELECTRONIC JOURNALS IN ARL LIBRARIES

January 1994

Name:_____ **Title:**_____

Library:_____ **Telephone:**_____ **Email:**_____

Instructions: For each question, please check all appropriate answers, filling in the blank if "other" is selected. Responses are strictly confidential and your specific responses will never be identified by your name or institution without your permission. Please refer to the survey comments section for further information and response to questions.

1. Is your library currently making electronic journals available?

a. 35 Yes (46%) b. 40 No *Please skip to question 2.* (52%)

How?

4 receiving and storing locally 11%
16 providing telnet/gopher access 46%
15 a combination of each 43%

Please skip to question 5.

2. If you answered no above, has your library discussed the possibility of acquiring or providing access to electronic journals?

a. 32 Yes 80% b. 7 No 18% 1 No answer 3%

If the answers to all of the above questions were no, please return only this page in the enclosed envelope. Thank you for participating in the study.

If your answer to question 2 was yes, and your library has decided not to acquire or provide access to electronic journals or has not yet reached a decision, please answer the following two questions and return this page only.

3. What were/are the deciding factors in rejecting or delaying the availability of electronic journals? (Indicate as many as appropriate.)

a. 4 No material appropriate to the library's collection 10%
b. ____ Lack of Internet/Bitnet access
c. 4 Lack of knowledgeable personnel 10%
d. 9 Lack of experience 22%
e. 8 Lack of personnel to handle additional work 20%
f. 14 Lack of hardware 35%
g. 1 For downloading from Internet/Bitnet 3%
h. 13 For providing access to patrons 32%
i. 7 Too complicated at this time 18%
j. 3 Must reach agreement with other University units (e.g., Campus Computing Center) 8%
k. 16 Other: 43%

4. Who made the decision not to make electronic journals available?

a. 5 Director/Dean 12%
b. 4 Head of Technical Services 10%
c. 6 Collection Development Librarian 15%
d. 1 Bibliographers 3%
e. 3 Task Force 8%
f. 14 Other: 35%

Please return only page 1 in the enclosed envelope. Thank you for participating in the study.

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5. Who decides which journals are added to the collection?

	Paper	Electronic
Individual bibliographers	22 (63%)	15 (43%)
Committee of bibliographers	6 (17%)	5 (14%)
Committee of librarians	5 (14%)	10 (28%)
Collection Development Libm	11 (31%)	9 (26%)
Teaching faculty	7 (20%)	7 (20%)
Head of Technical Services		
Director/Dean	1 (3%)	2 (6%)
Acquisitions/Serials Librarian	4 (11%)	4 (11%)
Other (Please indicate):	3 (8%)	13 (37%)

*Note: percentages equal more than 100%, since some libraries checked more than one group.

6. If selection responsibility in an answer above is different for electronic journals than for paper journals please briefly indicate why:

7. Do you have a collection development policy that addresses making electronic journals available? *(PLEASE ATTACH A COPY, IF AVAILABLE.)*

a. 5 Yes (14%) b. 30 No (86%)

8. Are the selection criteria used in making electronic journals available different than those used paper journals?

a. 15 Yes (43%) b. 19 No (54%)

9. Check factors that are considered in selecting electronic journals:

a. 15 Covers an area where speed of publication is important 43%
b. 15 Interactive or online format is important 43%
c. 7 Long-term archival access may not be critical 20%
d. 18 Faculty request subscription 51%
e. 22 Technical compatibility or incompatibility 63%
f. 18 Other significant factors: 51%

10. Is there a line item in your materials budget specifically for electronic journals?

a. 1 Yes 3% *Go to question 12.* b. 33 No 94%

11. If you answered no above, in which of the following groups are electronic journals included for budget purposes?

a. 2 CD-ROM subscriptions 6%
b. 9 Paper journal subscriptions 26%
c. 11 Only one line for all types of subscriptions 31%
d. 4 Only one line for all types of serials 11%
e. 6 Online information services (Dialog, LEXIS/NEXIS, BRS, etc.) 17%
f. 10 Other: 28%

*Note: percentages equal more than 100%, since some libraries checked more than one group.

12. How are electronic journals acquired by the library?

a. 6 Using the same acquisitions procedures used for paper journals 17%
b. 20 Using essentially the same procedures with modifications 57%
c. 8 Using special procedures established specifically for electronic journals. 23%

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13. Who is responsible for acquiring/providing access to electronic journals?
a. 9 acquisitions librarian 26% b. 4 paraprofessional staff 11%
c. 8 support staff 23% d. 18 computer professional 51%
e. 10 other: 28%

*Note: percentages equal more than 100%, since some libraries checked more than one group.

14. How are purchase orders for electronic journals sent?
a. 13 Through the mail 37% c. 15 By fax 43%
b. 5 Through Internet/Bitnet 14% d. 5 By phone 14%
e. 5 Other: 14%

15. How do you receive invoices for paid subscriptions to electronic journals?
a. 17 Through the mail 48% c. 1 By fax 3%
b. 3 Through Internet/Bitnet 8% d. 3 Other: 8%

16. Describe the cataloging records used for electronic journals:
a. 15 Complete original cataloging 43%
b. 19 Copy cataloging (i.e., OCLC, RLIN records) 54%
b. 2 Brief title entry only on OPAC 6%
c. ____ In separate serials catalog using only brief records
d. 6 Electronic journals are not cataloged 17%
e. 6 Other: 17%

17. How are new issues of electronic journals sent to cataloging?
a. 5 Through Internet/Bitnet to serials cataloger's account 14%
b. 1 Downloaded to a diskette 3%
c. 1 Paper copy printout of entire issue 3%
d. 6 Paper copy of title page, publication information, etc. 17%
e. 8 Note to serials cataloger 23%
f. 7 Other: 20%

18. Does the level of cataloging for electronic journals differ from the cataloging for paper journals?
a. 13 Yes 37% b. 20 No 57%

19. If call numbers are assigned to your paper journals, are they also assigned to your electronic journals?
a. 13 Yes 37% b. 15 No 43%

20. Are standard subject headings (LCSH, NLM) used for electronic journals?
a. 21 Yes 60% b. 7 No 20% 1 No ans 3%

21. What fields are added to the bibliographic records for electronic journals? ***(PLEASE ATTACH A SCREEN PRINTOUT, IF POSSIBLE.)***
a. 19 GMD [computer file] 54% c. 18 265 notes 51%
b. 6 500 notes 17% d. 20 Other: 57%

22. Are the instructions for accessing electronic journals included in the cataloging record? ***(PLEASE ATTACH A SCREEN PRINTOUT, IF POSSIBLE.)***
a. 14 Yes 40% b. 4 No 11%

23. If you provide only gopher/remote access to electronic journals, do you create a catalog record on the OPAC?
a. 13 Yes 37% b. 17 No 48% 1 No ans 3%

24. How are electronic journals made available to library users? (Check as many as apply.)
a. 8 On the library's OPAC 23%
b. 6 Available only to those with Internet/Bitnet accounts 17%
c. 9 Public terminal with Internet/Bitnet access and library account 26%
d. 23 On a campus-wide computer network/information system 66%
e. 12 Telnet access available for remote users 34%
f. 31 Gopher access to remote sites 88%
g. 2 Downloaded to diskettes for access on PCs 6%
h. 4 Available ONLY in the library 11%
i. ____ Must make copy and go elsewhere to read
j. ____ Only paper copy is provided
k. 3 Paper copy is available for those not willing/able to use computer access 8%
l. 3 Other: 8%

25. If available ONLY in the library, in which library locations can users access electronic journals?
a. 2 Electronic text center 6%
b. 2 Nonbook/AV center 6%
c. 1 Microforms 3%
d. ____ Reference
e. ____ Periodicals
f. 1 From any online terminal, regardless of location 3%
g. 1 Other: 3%

26. If electronic journals are available through a local information system or file server, describe the following:
a. Hardware specifications: Please refer to survey comments section

b. Telecommunication network:

c. Access software:

d. Storage required:

27. Have you established an Internet/Bitnet account specifically for receiving electronic journals?
a. 11 Yes 31% b. 20 No 57% *Go to question 33.*

28. Who is responsible for downloading issues of electronic journals from Internet/Bitnet for patron access? (Be sure to check all that apply.)
a. 5 Acquisitions Department personnel 14%
b. 5 Serials Department personnel 14%
c. 5 Library computer specialist 14%
d. ____ Campus computer personnel
e. 1 Access services personnel 3%
f. 2 Other: 6%

29. Who has been trained to access the Internet/Bitnet account/s?
a. 6 Acquisitions/Serials clerk who orders electronic journals 17%
b. 4 Acquisitions/Serials receipt clerk 11%
c. 1 Serials claims clerk 3%
d. 1 Access Services clerk 3%
e. 1 Serials cataloger 3%
f. 2 Head of Serials 6%
g. 2 Head of Acquisitions 6%
h. ____ Head of Access Services
i. 6 Other: 17%

30. How is Internet/Bitnet training provided to library staff?
a. 17 Group instruction 48% b. 11 Individual instruction 31% c. 3 Other: 8%

31. Who trains library staff on Internet/Bitnet access?
a. 12 Self-training 34%
b. 1 Head of Serials 3%
c. 2 Head of Acquisitions 6%
d. ____ Head of Technical Services
e. ____ Head of Access Services
f. 5 Systems Librarian 14%
g. 6 Library Instruction staff 17%
h. 9 In-house computer specialist 26%
i. 5 In-house training expert 14%
j. 4 Campus computer center staff 11%
k. 6 Other: 17%

32. What methods of training are used?
a. 9 Locally developed manuals 26%
b. 1 Software tutorial programs 3%
c. 15 Structured classes 43%
d. 1 Programmed instruction 3%
e. 14 Verbal instruction, one-to-one 40%
f. ____ Print resources. Indicate titles:
g. 3 Other: 8%

PLEASE ENCLOSE SAMPLE TRAINING DOCUMENTATION IF AVAILABLE.

33. How often is the Internet/Bitnet account checked for new issues?
a. 16 Daily 46%
b. 3 Weekly 8%
c. 5 Not checked - have automated receipt 14%
d. 3 Other: 8%

34. Are issues of electronic journals checked-in?
a. 22 No *Go to question 36.* 63%
b. 7 Yes 20%
c. 7 On a local serials control system 20%
d. 5 Automated; please specify system: 14% CARL 1, Notis 1, Dynix 1, VTLS
e. 3 Manual system 8%
f. 2 Not checked-in 6%
g. ____ Other:

35. What level of check-in is provided for electronic journals acquired by the library?
a. 6 issue level only 17% b. ____ article level only c. 4 both issue and article level 11%

36. For journals not acquired but available through gopher/remote access, is check-in information provided?
a. ____ yes, at issue level
b. ____ yes, at article level
c. ____ yes, at both issue and article level
d. 33 no check-in is attempted 94%

37. What arrangement have you made for archival copies?

a. 10 Depend on the publisher for back issues 28%
b. 9 Depend on a consortium which maintains an archive 26%
c. 2 Create a master copy on diskette 6%
d. 1 Create a master copy on magnetic tape/cartridge 3%
e. 9 Maintain an electronic file in the computer center and/or library 26%
f. 1 Create an archival paper copy using laser printer, acid-free paper, and library binding 3%
g. 12 Other: 34% 6 None 18%

PLEASE ATTACH COPIES OF INTERNAL POLICIES AND PROCEDURES FOR PROCESSING ELECTRONIC JOURNALS.

If necessary for questions 38-42, please use the back of this sheet or attach a list if available.

Please refer to survey comments section

38. List the titles of the electronic journals to which you currently provide local access.

Title	Internet/Gopher access? (y/n)	Locally stored? (y/n)

39. If your library's online system provides users with menu-assisted access to a particular gopher site for electronic journals, please list which one(s):

40. Describe the impact of electronic journal subscriptions on public service responsibilities and workloads:

41. Describe your experience in providing access to electronic journals (i.e. successes, failures, satisfaction, user demand, recommendations):

42. What do you predict the impact of electronic journals will be on libraries and on the process of scholarly communication?

Thank you for your time! Please return your completed survey and accompanying documents by February 17, 1993 to: C. Brigid Welch, Director of Information Services, ARL Office of Management Services, 21 Dupont Circle, Washington, DC 20036 Phone: (202) 296-8656; Fax (202) 872-0884; Email: brigid@cni.org.

Survey Comments

Seventy-seven libraries returned their questionnaires, a 65% response rate. Two respondents indicated they were not prepared to participate in the Survey at this time.

1a. Planning to receive & archive some e-journals, but have not done so yet

1b. - Hard copy versions of a few electronic journal titles are being made available in the Library, however

- Depends on the definition of electronic journal: we consider indexing and abstracting tools on CD-ROM as a kind of electronic journal. Listservers available free via Internet are available on the University's data network. Others which are free may be accessed through a Gopher. We are not paying for electronic journals at the moment unless they are in CD-ROM format or on the Library's OPAC. We have not yet addressed most of these issues

2a. - We anticipate discussion in the near future
- Not yet. We plan to subscribe to one journal this year as a test, but have not yet received it
- The Library is in the process to form a group to look at this issue, both locally and state-wide

3k. - All of these are issues under discussion
- Level of Access
- Cataloging problems
- Lack of Ethernet access on campus
- Lack of gopher access by user community
- Most users getting direct access
- Integration of electronic journals into schema of overall collection development policy needs to be addressed
- Policy for accessing/collecting e-journals being considered
- Other electronic resources needed attention first, but this survey is prompting a closer examination of local support possibilities of e-journals
- Lower priority - This year we will investigate adding a directory to relevant electronic journals as a part of our online catalog
- Not enough appropriate material to general faculty or student demand
- The only journal available via Internet which has been requested is a mathematics title
- Lack of expressed interest/demand from users
- No demand from faculty or students
- Little interest expressed by faculty and students
- Stay in step with regional group
- Want to work out specifics of acquisition, archiving, etc. before we go online
- Not ready yet
- Training and educating staff needs to be undertaken
- I anticipate that once we have an integrated system installed, perhaps 1995, a task force on electronic serials will be set up, and the issues discussed

- Decision postponed until all the systems work tied to the move to a major new building has been completed; deadline for building is September 1994
- We are unable to answer the rest of the questions because they have not yet been addressed. We recently appointed a Task Force to address these very issues
- Public domain electronic journals currently available on the Internet have been made available to the ... community by ... through the University's ... Gopher server. The ... gopher serve can be accessed on the same work stations in the Library as the OPAC and other Library supplied resources. The electronic journals that are available have not been "selected" by the Library. A report on electronic journals by a library task force called for a six month pilot project to determine staffing needs and costs of providing access to locally mounted electronic journals as well as other electronic resources. Work on this will be getting underway later this year

4f.
- Combination of all of above
- Dir of Ref & Info Services, Dir of Collection Services, & three subject bibliographers
- Public Services Dept. Head - 3
- Systems staff
- Group decision
- Committees
- Library Executive Committee
- In process of implementing
- You have reached us in mid-stream. We plan to provide access to (4?) e-journals by end of 1994
- No decision has been made. We currently have an Electronic Journal taskforce that is helping Collection Development, Serials, and Public Services revise their policy documents to handle E.J.'s. Also we are working with other sister institutions in this area to do the same
- I don't believe a negative decision was made, rather no decision was made. We are in the process of developing a gopher server for the library. On that we will provide access to freely available e-journals. To my knowledge, purchasing subscriptions to commercial e-journals has not yet been widely discussed in our library
- This decision has not been made. We never decide <u>not</u> to make information available
- There has been no decision not to make them available; we simply lack the resources at present
- No official policy decision made. We have not yet pursued acquisition of electronic journals and are just beginning to address the selection, access, archiving and maintenance issues
- There has not been an active effort to <u>not</u> make e-journals available
- We have not made a decision <u>not</u> to make e-journals available, but we plan to move forward gradually for the reasons given in 3 (a.,d.,i.)
- This decision has been delayed not decided in the negative
- No one decided against - we're still discussing

5(other). *Note: Percentages equal more than 100%, since some libraries checked more than one group.*
- Systems
- Individual Recommendations from Professional Staff (both)
- Gift and Exchange Librarian (both)
- Gopher Development Group in Computing & Information Services (electronic)
- CICNet

- Systems staff have input on electronic
- Pointing to major collections on other gopher sites
- Telnet/gopher access is not considered as "adding" to the collection
- Not decided at present; present collection assembled by systems staff
- Discussion with Reference, Faculty & others (electronic)
- Committee reviews requests for duplicate
- Systems Librarian makes titles available at the request of bibliographers
- Gopher Development Team (electronic)
- Public Services Committee: Associate Dean for Collections and Services and four dept. chairs, review recommendations
- Information Technology Division staff (electronic)
- Individuals propose, the committee [of bibliographers] reviews. For electronic journals, the individual must arrange access through the gopher or some public service point.
- Eventually it will be individual bibliographers, but we've started with a Task Force
- We are currently using CICNet gopher, and are taking a leadership role in its development

6.
- Newness of material has resulted in lack of confidence - also committee will decide preservation level, look at equipment necessary, whether to cancel print version, etc.
- Because input is needed from more than just bibliographers
- Electronic Resources and Technology Committee monitors and makes recommendations to individual bibliographers and/or Collection Development Committee
- Technical expertise attendant on access limited to one individual (gopher administrator)
- Information Technology Division staff have responsibility for titles available on Gopher
- As of now, the demand to have e-journals available specifically through the Libraries is very low; awareness is just beginning to grow. Therefore whatever is available is so at the initiative of a couple of librarians, although others of course make use of access through Internet. Paid subscriptions have not yet become an issue, so we are trying to gain experience in an informal way
- Right now, we only give access through Internet to e-journals available free. We do not subscribe to e-journals. That's why. The Gopher Development Team has a responsibility in pointed distributed resources
- E-journal access not really routine - we're piloting different methods
- A separate committee currently looks after and maintains our electronic information service
- The additional step is required to get the journal on the gopher server or menu or to get a slot for it on a CD-ROM server
- During our pilot project, electronic journals have not been evaluated by the subject serials review committee. A select group of librarians have chosen the electronic journals to make available
- A committee of librarians selected an initial group of ejournals to place on our campus wide information system - navigation to them, that is. Following this initial selection, bibliographers and/or faculty will select additional ejournals
- We started with a Task Force approach and are now working on Internet training and "consciousness-raising" for all bibliographers

- Eventually we will involve individual bibliographers in this process, but are doing some preliminary work to get a consortial approach in place

7. - The Task Force on Policy for Electronic Journals recommended that each bibliographer incorporate a statement into his/her Collection Development Policy document
- The policy is in the process of being developed
- We are in the process of revising our collection management to include electronic resources
- We are currently experimenting. Our approach is to use same criteria, plus some additional considerations including archiving format, technical compatibility

8a. - We are less strict with electronic journals
- We may not acquire electronic media if we lack the appropriate systems support

8b. - Somewhat - we're still choosing free journals; we're considering the role of CIC cooperation
- This is being reviewed
- The basic criteria are the same, but technical issues are considered

9f. - Cost; breadth of scope and number of potential users; amount of reference assistance which users will need; remember that our journal list is shrinking owing to fiscal restraint
- Canadian context
- What is available free over the Internet (2)
- Cost
- Trying to move forward - experimental. Format is ASCII (currently)
- Refereed
- Supports broad-based programs
- Support of research, instruction (2)
- Enhancement of total collection
- Only format available (3)
- Within scope / Subject coverage
- Contents; our willingness to experiment
- Archival access should not be the responsibility of any individual institution
- Selection is on a very small scale & has not yet been regularized
- Easy availability
- Accessibility (already easily available elsewhere?)
- Material must be available to anyone who wants to use it, and wherever they want to use it on the campus network, or through the Internet
- If there are versions in other formats, does the electronic version offer enough enhancement to justify added cost
- License restrictions, particularly with regard to networking
- We make a decision about archiving when we decide to subscribe
- Available via a gopher; indexed; potential level of use; access free
- Quality of the materials
- Stability of the remote site
- Demand
- Language of publication
- Indexing

10(other).
- There is a line for start-up costs. After that they go in the serials budget

11f. *Note: Percentages equal more than 100%, since some libraries checked more than one group*
- We are not currently paying for electronic journals available on Internet / at present only free journals have been added to the collection, although purchased journals are planned / No paid subscriptions / They're free / Thus far, only free electronic journals are provided / free resources on Internet / currently no e-journals with cost / collect only 'free' subscriptions
- State purchasing law does not allow purchase or acquisition of electronic formats on the materials budget
- Locally mounted databases

12c.
- We have subscribed to the Online Journal of Current Clinical Trials and are planning to subscribe to two online math journals. All other e-journals available free over the Internet are added to our Gopher (for access only)
- 1) Search the Directory of Electronic Journals, Newsletters and Academic Discussion Groups. 2) Search gophers worldwide to locate issues/archives/ftp sides with e-journal.
- They are on our gopher with no bibliographic access (supplementary) or check-in procedures
- Funding and policies are being reviewed during the next six months
- Question not applicable in the light of our very informal arrangements
- a) We create notes files & forward journals to them. b) We provide end-user access to CICNet Archive
- We haven't really "acquired" them, per se not in the sense of having purchased. The only non-Gopher title we have was received as a gift subscription
- Methods used will depend upon the nature of the access to the journal, costs, if any, and such considerations as archiving back files
- Acquire through LISTSERVs, ftp, e-mail to special Acquisitions e-mail account. Otherwise processed in the same way as software acquisitions
- We provide only navigation to them at present
- We tried to create a parallel process with modifications only where they were necessary or where they afforded us an advantage
- CICNet server

13e. *Note: Percentages equal more than 100%, since some libraries checked more than one group*
- Serials/Computer & Information Services Subject librarians
- Selectors
- Serials librarians; bibliographers
- Librarian who coordinates networked resources and oversees our gopher
- No formal responsibility actually given as yet
- Serials Librarian and Systems Librarian
- Where a subscription is required, the head of Serials and appropriate support staff; for free gopher titles, the gopher administrator
- Librarians, subject specialists
- CICNet
- Support staff acquires and currently moves files to a system area to be dealt with by Systems personnel

14e. - Depends ...
- No regular purchase orders
- Like other publications, i.e., vendor specific
- Publisher
- None have had fees yet; will go as other payments
- The state wants everything on paper
- All, depending upon title

15d. - Depends ...
- Like other publications, i.e., vendor specific
- None received
- None have had fees yet; will go as other payments

16b. - Several indicated that b. was the first choice followed by a. as appropriate

16e. - Not cataloged at this point
- Not yet resolved; for now they're mounted or pointed to on library gopher
- We have only one or two OPAC records for these, done on an experimental basis
- Brief listing arranged by academic discipline
- Developing shared cataloging for CICNet collection

17f. - Informal notification to Cataloging
- Access through staff LAN
- Access information for electronic version so that cataloger can retrieve complete issue
- CICNet procedure
- Internet/Bitnet if new title or title change; note to serials cataloger for bibliographic, name authority, or holdings records modifications

21d. - Location note
- ISSN
- Probably an 865 for host.
- Local information note (590) for access instructions
- Very brief, & we are not yet satisfied
- Plans are to add 930 note for summary holdings in brief record display
- 590 local access notes

22. - Records indicate access via the Campus Wide Information Network

23. - This is one of the upcoming issues
- We provide a catalog record for those on our own gopher
- We have, experimentally, for one or two
- For an experimental group of titles so far

24k. - In one branch library. Not library wide policy

24l. - On the Electronic Resources Center's stand-alone
- Available in Electronic Text Center, which supports remote access by members of university
- CD-ROMs on Novell network - primarily bibliographic serials

25g. - In reference area of relevant subject library (downloaded to diskettes for access on PCs)

26a. Hardware specifications:

All types (PC,Mac,UNIX)
ps/mac/unix/terminal
MAC, PC, UNIX-based workstations and VAX
Novell network server
Sun SPARC station or IBM machine
UNIX mini-vax
NEXT
DECStation 5000

- All hardware is handled through the campus computer center. Specific details about equipment are not available
- Have not yet designated a server; requirements might be DECstations running Ultrix or similar

26b. Telecommunication network:

campus network (ethernet)
Ethernet - TCP/IP -Novell Lans
TLP
Internet
10 base-T Ethernet
Ethernet / DECnet / modem
Ethernet / TCPIP

26c. Access software:

Gopher (8)
Gopher server and client software
Lookfor
SPIRES
dtSearch
Gopher, WAIS, WWW
Gopher server, WAIS indexing software

26d. Storage required:

1st year: 50MB
20MB (6 journals locally stored)
distributed
ca 26 MB
1 Gigabyte and growing
circa 30 Mb

27. - Clerk uses personal account on UNIX machine
- Already established working account for department

28f. - Acquisitions/Serials Department (merged dept.)
- E-journals are e-mailed into account, checked in by Acquisitions, then automatically transferred into current directory
- Downloading is not typical; access is via remote links

29i. - Asst. Serials Librarian; Manager, Serials Ordering
- Library computer specialist, but Serials staff will be trained in near future

- Library Technology Services staff
- Systems/Networked Services staff

30c. - books & articles
- We hold weekly Internet brown bag lunches on various topics

31k. - Branch staff - computer literate staff
- Reference librarian
- Coordinator, Electronic Resources (librarian)
- Volunteer trainers working with Library's Training Coordinator
- Staff who have more expertise than others
- Head of Reference, Head of Networked Service, Head of Cataloging, Heads of Branch libraries. Library teams are responsible for training their staff

32g. - locally produced handouts
- instructional modules via email
- Verbal instruction groups with hands-on practice

33d. - Check only informally
- Irregularly

34d. CARL 1
Notis 1
Dynix 1
VTLS

34f. - not yet resolved
- If we archive locally, we check it in. If we rely on a remote site, we just check occasionally to be sure it's working

35c. - both issue and article level depending on how its shipped to us

36. - We regard providing menued access (and cataloging) to remote sites as a form of acquisition. It imposes indirect costs on the library and these titles are examined as closely as those which we archive locally

37d. - routine system backup

37g. - Working with UC Press on a model
- Varies, rely on whatever archiving is available through the network
- Receive an archival microform copy of one journal
- Titles archived locally are held on our gopher server and backed up with all the other data on it
- CIC net e-journal archive

38. List the titles of the electronic journals to which you currently provide local access.

Title	Internet/Gopher Access?	Locally Stored?
Academe this week	Y	
American Arab Scientific Society Newsletter	Y	
American Catholic Studies Newsletter	Y	Y (Current issue only, paper back files)
Arachnet Electronic Journal of Virtual Culture	Y	
Architronic	Y	
Athene	Y	
Austrian Historical Bibliography	Y	
Book Review Digest	Y	
Bryn Mawr Classical Review	Y (4)	Y (2)
Bryn Mawr Medieval Review	Y (4)	Y
Clionet the Australian Electronic Journal of History	Y	
Contents	Y (2)	
Cook Report on the Internet		Y
Coptnet	Y	
Current Cites	Y (1)	Y (1)
Distance Education Online Symposium		Y
Droplet	Y	
EJournal	Y (3)	Y (3)
Electronic Journal of Differential Equations	Y (2)	
Electronic Letters Online		
Electronic Transactions in Numerical Analysis	Y	Y

(ETNA) Matrix News	Y	Y
FINS (Federal Information News Syndicate)		Y
Hindu Digest	Y	
Holy Temple of Mass Consumption	Y	
INN (Information Networking News)		Y
Information Technology & Disabilities	Y	
Interpersonal Computing & Technology Journal	Y (1)	Y (1)
Inter/Text	Y	
Islamic World News	Y	
Issues in Science & Technology Librarianship		Y
James Dobson's Newsletter	Y	
Journal of Extension	Y	
Journal of Statistics Education	Y (1)	Y (1)
Journal of the American Chemical Society	Y	
Journal of the Intl Academy of Hospitality Research	Y (3)	Y (2)
Kluwer Comp. Sci. & Engineering Journal Contents	Y	
Laboratory Primate Newsletter		Y (2)
Lchaim	Y	
LIBRES	Y	
MC Journal: Journal of Academic Media Librarianship	Y	
Muslim News	Y	
NSF Bulletin	Y	
New Horizon in Adult Education	Y (2)	Y (3)
Newsletter on Serials Pricing Issues	Y	
Nuclear Physics Electronics A and B		Y

Online Journal of Current Clinical Trials	Y (1)	Y (2)
PACS News	--	Y
PACS Review	Y (2)	Y (2)
Postmodern Culture	Y (5)	Y (5)
Psychology	Y	
PSYCOLOQUY	Y (5)	Y (5)
Purps	Y	
Quanta	Y	
RD: Graduate Research in the Arts		Y
Religious Studies Publications Journal		Y
Scientist	Y (3)	Y (1)
Scientist Newsletter	Y	
Scripture	Y	
TAPA Transactions of the American Philological Association	Y	
Temple of Pychik Youth	Y	
TOCS-IN Tables of Contents of Journals of Interest to Classicists	Y	
USA Today		Y
Washington Post		Y
Watcher	Y	
World Cultures		Y
Networks and Community		Y
Infocycle		Y
National Library News		Y
Attachments (1)		

39. - Where files are not stored locally, our intention is to point to the publication's official gopher site if available. A particular gopher site has not been chosen
- In process of establishing gopher access sites. These are likely choices: CICNet, SUNY Morrisville, Virginia Tech, Univ. of Minnesota
- While we primarily archive our e-journals, we point to the following gopher sites: gopher.cic.net una.hh.lib.umich.edu (2 titles)
- Kitnet
- CICnet (10)
- SUNY Morrisville
- LC MARVEL
- University of North Texas' Archive (?)
- participate in CICNet
- U of Michigan
- Ohio State
- transparent telnet access to Minnesota and a Texas site
- We have a library gopher and provide access to university gophers
- We refer them to the local gopher ... which contains a list of electronic journals and the navigation to various remote gophers

40. - Too early to draw conclusions / Too early to tell / Too new to assess / Too soon to evaluate / Too early to determine / Too soon to tell
- Very little at present / Not much yet / Almost none / Little, if any, impact at this point
- Minimal to date; most questions relate to printing and downloading on user's in-office equipment
- Minimal to date, due to the small number of titles presently available
- E-journals have not created much additional workload - users find them easy to access and software and menus straightforward. The major impact was in training all public service staff which was undertaken by a Reference Librarian
- Current situation very informal; procedures have yet to be developed for incorporating processes into staff work flow
- Considerable expense of time to acquire and process the journals that are locally stored
- Staff time to build and maintain the library gopher
- Availability of journals via Internet requires our tracking new offerings and then notifying interested parties. Some impact on development of menu choices on the local gopher. Training issues subsumed within general Internet instruction
- Bibliographers are responsible for identifying and providing access to journals in their disciplinary areas. At present this is not a particularly onerous responsibility, but some put more emphasis on it than others
- Increased workload for staff responsible for e-journal acquisition and e-journal training. Somewhat increased workload and perceived need for e-journal training for reference staff in the units where e-journals are located
- Added instructional component. Need to evaluate materials. Explain access problems not related to the local system
- Force people to become Internet/Gopher literate
- We provide access almost exclusively through the University gopher. Public service staff report almost no questions about electronic journals although our gopher use statistics indicate significant use

- Too early to say. However, it is imperative that every public service reference librarian know how to access e-journals via email & gopher (we have accomplished this)
- Not much so far, but they are beginning to be integrated into formal instruction sessions
- Apart from planning, none as yet
- Seems overwhelming at this point!

41. - Too soon / Too early to say (2) / Too early to tell / Too early
- Only just begun
- User demand is low
- Users are quite interested
- Still in evaluation; doing focus group with users
- The e-journals now available are used infrequently. Once we start to offer popular journals and newspapers, the impact will be significant
- E-journals were relatively easy to acquire and make accessible. Receipt cannot be fully automated as yet. Users are reading/accessing the titles selected and the use overall was high
- Small, but growing, interest that will mushroom once more formal publications become available
- Our current efforts too minuscule to say anything meaningful
- Greater need for coordination among Coll. Mgmt. technical services, public services and Information Technology Division staff
- Central archiving concept produces delays in adding new materials. Gopher access seems to be easier for the patron than in-house, local and stored materials
- Pointing to a journal through the home gopher is ideal. Need for automatic updating software to retrieve new issues of journals that have been identified and linked through gopher
- Positive reaction from faculty and researchers at the ease of availability. Received requests for e-journals within 2 days of appearance of their catalogue records on Library's OPAC. Hope to upgrade access from locally-held stand-alone stations to access via University's CWIS
- So far it's well accepted. Too soon to anticipate successes or failures
- We participate in the Elsevier TULIP project. In its earliest stages it appears that in materials science there is interest in the Tables of Contents and Abstracts without need for full text. Still too early to see trends
- Please refer to published articles (Virginia Tech)
- Our biggest problem has been getting people to look at them the first time; once they do that they use them easily and eagerly. There seems also to be good acceptance of the Library as intermediary. Attached are usage figures on locally mounted titles from November 1993

Figures cover only locally mounted journals and include usage both from the University and from other sites:

Bryn Mawr Classical Review	1892 uses
Bryn Mawr Medieval Review	469
LC Cataloging Newsline	109
LIBRA, UVA Library Newsletter	64
UVA Physics Dept. Preprints	103
TOCSIN	601
IAU Circulars	115

- Transformation!

42. - Unknown as yet
- No more document delivery
- Huge - CD-ROMs and Gopher
- We plan to offer IAC full text (ASCII) to 1,000 journal within a month. This will have a significant impact. We (I) predict many will never be happy with print access to journals again
- There will be a growth in the number of e-journals and their sophistication will increase. More and more commercial publishers will offer electronic journals particularly where speed is of the essence
- We do expect greater interest from teaching faculty
- A lot of the access will bypass libraries that do not become involved at an early stage and work hard to facilitate access and train faculty and students in its use
- Need to do many more tests - developmental work to assess: demand, economics, visibility of technology (particularly images)
- E-journals will become more important as they acquire graphic-displays and interactive capabilities
- Significant in long term; for near future relatively insignificant (won't be most in-demand journals; will supplement but not replace their print counterparts); end users don't have the hardware, technology can't deliver the color and graphics
- Our experience is now very limited. We are following closely the developments in that field. Our objective is to eventually subscribe to e-journals. The impact should be more rapid communications and use of the library "collection' from outside its "walls"
- Unless we conquer the archiving problem, future scholars will miss a lot of info from earlier works
- There will be both positive and negative impact. Users already are asking for additional journals, some needing color and graphics. The pressure to keep up with equipment will be great. Faculty are very optimistic the development and proliferation of e-journals will take pressure off Serials budget and enable us to maintain our collections without the major cancellations we have faced in recent years
- We have created a separate Electronic Resources Center within the library to provide access to and Instruction regarding the burgeoning number of electronic titles we expect to see over the next five years
- Major growth area, with the incorporation of SGML for improved quality of display and access
- Should have dramatic impact on the speed of scholarly communication (already has!) Main impact on libraries will be in providing access, especially with regard to the exponential growth of available titles
- Tremendous, once we increase both the number of e-journals available to our patrons and expand means of access
- I believe they will eventually supplant paper journals. The delivery mechanisms, such as WWW [World Wide Web], are there to produce a relatively sophisticated e-journal. Connecting to the individual user is the biggest problem now. That will improve as our offerings improve so that institutions and individuals have an incentive to upgrade
- Instant scholarly communication; but concerns about ownership of scholarship. Scholars will be reluctant to share new research via electronic modes. Paradoxically, extensive communication may well result in a <u>decrease</u> in published scholarship.

- Electronic journals speed up delivery by reducing preparation and distribution time; however, suffer some problems in consistency and quality as a result. Libraries will have to be prepared to react swiftly to electronic journals to capitalized on their timely nature - some sharing of responsibility may be necessary to accommodate explosive growth of e-journals. Scholars will likely mitigate factors of quality and accuracy but libraries will by necessity become more involved in the consistency of the e-journals (where it's coming from, site stability, frequency of publication, etc.) In this sense, e-journals will accelerate and acerbate the confrontation between libraries and publishers
- Electronic formats will become more convenient when users have adequate equipment to view images. Current use seems to focus on newsletter-type information that is timely in electronic form. In the next few years we will see electronic journals primarily as supplements to, rather than substitutes for, printed titles
- Very positive and in increasing instensity as they grow exponentially
- They are here to stay!
- It changes everything

SYSTEMS AND PROCEDURES EXCHANGE CENTER

TASK FORCE REPORTS

University of Alberta Library

ELECTRONIC JOURNALS GROUP

Report

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Tina James
Maryon McClary
Patricia Rempel

April 1992

I. Introduction

An electronic journal is a publication whose primary means of delivery to subscribers is through a computer file.

Electronic journals display a wide range of characteristics. Most are free, others modestly priced, some very expensive. Some are peer-reviewed, others not. Some follow traditional journal format with volume numbering, regular frequency, and tables of contents, others issue unnumbered separate "issues". Some are automatically sent to subscribers via electronic mail, others must be retrieved from remote computers. Some are also available to subscribers via regular mail on more traditional media such as microfiche and floppy diskette. Some are indexed in standard indexes, and some come with their own software. All are changing and evolving.

The Electronic Journals Group arose because there was a need to investigate and recommend means of providing public access to electronic journals in our Library.

II. Activities and conclusions

The Group conducted its investigations through various activities:

- Reading, monitoring of relevant listserv discussions (eg. PACS-L, Serialst). See bibliography for selected articles.
- Consultation with Ernie Ingles, Doug Poff and Jim Heilik, and Chuck Humphrey
- Each member subscribed to a free e-journal (see Appendix 1 for a list and brief description of each)
- Some journals were printed
- One journal was mounted as a WordPerfect file on a PC in the Education Library, and public service issues discussed with Education staff
- A number of textfile viewing and browsing programs were demonstrated by Data Library staff and evaluated (see Appendix 2)

The Group realized that both electronic journals and the means of accessing them are highly variable and changeable. Standards have not yet emerged and future developments are impossible to predict. Whatever means the Library adopts for handling them now should be considered as short-term. Changes will be required as developments occur.

Various alternatives were considered for providing access to electronic journals. The recommendations below reflect the approach which the Group feels is most appropriate at this time, and they deal only with journals in ASCII format.

III. Recommendations

1. Mainstream the selection and processing as much as possible.

1.1 Selection

Selection of electronic journals for our collection is the responsibility of unit libraries and liaison librarians.

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1.1.1 Use the same criteria used in the selection of journal titles in other formats. Criteria differ from area to area and discipline to discipline but include such factors as content, issuing body, indexing, peer review and cost.

1.1.2 While many electronic journals are free, assign funding for those with subscription fees from the unit library's 40-level (new continuations) funds.

1.1.3 Consider hardware and software required to view, download, and print as part of the selection process and make arrangements within the unit library to ensure that on-site access can be provided. (See hardware and software sections below.)

1.1.4 Where the primary means of distribution of a journal is in electronic format, it is recommended that the title be retained in that format rather than changed to print format.

1.2 Acquisition

Acquisition of selected electronic journals is the responsibility of the Acquisitions Division.

1.2.1 Establish a computer account on VM to receive journals. If any are available only through file transfer (ftp), they may be retrieved through an account on the Data Library's "datalib" computer.

1.2.2 Receive orders and set up records as usual. Place subscriptions as required by each journal. (Procedures may vary considerably.) Check the account regularly for new issues. Check in delivered issues. If the publisher sends an announcement or table of contents only, request the complete issue. Pay invoices and claim issues according to usual procedures.

1.2.3 Transfer issues to diskettes in ASCII format. Label diskettes with the title and volume number or date. Send a copy of each issue to the Data Library where a central archive for all electronic journals will be created and maintained.

1.2.4 Insert diskettes in padded envelopes and deliver to unit libraries, or to Cataloguing for new titles.

1.3 Cataloguing

Cataloguing of electronic journals is the responsibility of the Cataloguing Services Division.

1.3.1 Receive diskettes from Acquisitions. Catalogue journals according to the usual priorities and standards.

1.3.2 Classify according to normal guidelines (eg. LC call numbers or UNCLASS according to location).

1.3.3 Code summary holdings as usual, but do not provide detailed holdings. Add a note to the summary holdings: Electronic journal. Please enquire at the reference desk.

1.3.4 Do not "package" diskettes, as they will not circulate or be shelved in public areas. Deliver to unit libraries in padded envelopes.

1.4 Archiving/backup

1.4.1 Upon receipt in unit libraries, copy issues from diskette to hard disk. The diskettes may be kept in the unit library as backup.

1.4.2 The Data Library's central archive provides backup in case the unit library copies are damaged or destroyed.

2. Provide public access as appropriate to the user and the journal.

It is the responsiblity of unit libraries to provide access to electronic journals selected for our collection. It is the responsiblity of ILL to provide access to other journals as requested by patrons.

2.1 For all selected journals, onsite access must be provided for patrons.

2.1.1 Normally, store issues on PC hard disks in unit libraries, with LIST software mounted on the same PCs for viewing, printing, and downloading. For multi-purpose public computers, ITS will provide a menu and appropriate security so hard disk files stay uncorrupted. This will probably not be necessary when staff computers are used for public access.

2.1.2 Minimum hardware requirements are:

- PC or PC clone (preferred 386, minimum 286)
- 120 mg. hard drive (will store approximately 80 issues of a journal such as Postmodern Culture with 8-10 articles per issue)
- colour monitor
- 2 external disk drives (1.2 mg. 5 1/4 inch drive and 1.44 mg. 3.5 inch drive) to accommodate library and patron disks of both sizes and different densities
- printer with sound cover
- security cables
- furniture: table, chair, printer stand, etc.

2.1.3 Minimum software requirements are:

- DOS version 2.0 or later (required to run LIST)
- LIST version 7.6 (see Appendix 2 for program description and details).

2.1.4 Provide tip sheets for use of the LIST software and for citing electronic journals (see Appendix 3 and 4).

2.1.5 For some journals or unit libraries, different means of access may be necessary or more appropriate:

- journals may be printed out instead of stored on hard disk.
- journals which come with their own reading/viewing software will not require the LIST program.
- some journals require not only their own software but also an online connection to remote computer to retrieve data.

Other alternate approaches should be considered as they become available.

2.2 For patrons who request assistance to subscribe directly to electronic journals, provide ITS tip sheets in all unit libraries (see Appendix 5).

2.3 For interlibrary loans, provide borrowing and lending services according to usual policies, except that instead of borrowing from other libraries, retrieve articles from their host computers if they are free.

3. Provide staff training and support as appropriate.

Training coordination and hardware/software support is the responsibility of ITS.

3.1 To encourage general awareness for all staff, provide articles for Behind the Books, and offer brief introductory sessions through the Tastee Bytes program.

3.2 Provide area-specific training and support as necessary. This includes Technical Services, Public Services, and ILL staff. Staff from other units (eg. Data Library) may be called upon to assist.

3.3 If possible offer CITL sessions (similar to Tastee Bytes) to increase faculty awareness of electronic journals and Library services.

4. Beyond the short-term, monitor developments and make changes to procedures as needed.

4.1 The preceding recommendations do not provide for remote access but require the user to be in a specific location to use an electronic journal. Both the literature and the Library's Strategic Plan indicate we must move to providing remote and/or distributed access. At the present time we lack the equipment and infrastructure to do this. We recommend that the Electronic Journals Group actively monitor future opportunities for enhanced access to electronic journals, for example via a CWIS or a library integrated system. (The Group has put forward to ITS a preliminary proposal for inclusion of electronic journals in the CWIS which is expected to be introduced in May 1992.)

4.2 It is also recommended that the Electronic Journals Group (with assistance from other staff members) reconvene as necessary to monitor developments in e-journals, work through issues that arise with new e-journals, suggest changes in services/procedures as appropriate, and act as resource persons. One example of the type of issue expected to arise is the treatment of Online journal of current clinical trials , which presents different hardware, software, and pricing issues from other e-journals. The Electronic Journals Group will meet with Health Sciences Library collections and reference staff to investigate access issues for this journal.

Selected readings

1. Dougherty, William and others, Report of the Task Force on the Electronic Journal (Blacksburg, Va.: University Libraries, Virginia Polytechnic Institute and State University, 1991).

2. McMillan, Gail, ed. "Electronic journals: considerations for the present and future," Serials Review 17, no. 4 (winter 1991):77-86.

   This article is recommended as a summary of the electronic journal issues facing libraries.

3. Directory of Electronic Journals, Newsletters, and Academic Discussion Lists. Edition #1 (Washington, D.C.: Association of Research Libraries, 1991).

Appendix 1: Electronic journals for which subscriptions were placed by Group members
Appendix 2: LIST file viewing and browsing utility
Appendix 3: LIST tip sheet
Appendix 4: Citing electronic journals tip sheet
Appendix 5: Subscribing to electronic journals tip sheet

Electronic journals for which subscriptions were placed by Group members: APPENDIX 1

1. **EJournal**

EJournal is a free, all-electronic, Bitnet/Internet distributed, peer-reviewed, academic journal interested in theory and praxis surrounding the creation, transmission, storage, interpretation, alteration and replication of electronic text. Its scope includes the broader social, psychological, literary, economic and pedagogical implications of computer-mediated networks.
Issues are delivered via electronic mail and back issues are available from a fileserv at Albany. Authenticated paper copy can also be provided. EJournal expects to offer access through libraries to its electronic Contents, Abstracts, and Keywords, and to be indexed and abstracted in the appropriate places.

2. **New Horizons in Adult Education**

New Horizons in Adult Education is a refereed journal published by the Syracuse University Kellogg Project since 1987. It was founded to enhance international dialogue within the field of Adult Education using advanced communications technology. It publishes research, thought pieces, book reviews, point counter-point articles, and invitational columns written by graduate students, professors, and practitioners involved in adult education. The journal is managed by graduate students at Syracuse University in cooperation with graduate students throughout Canada and the United States. It is electronically transmitted via the Adult Education Network (AEDNET), accessible through BITNET; and is sent to all subscribers of AEDNET. There is no cost for the journal. Articles can be submitted to the editor in print, by mail or fax, or as an ASCII file through BITNET (HORIZON@SUVM) or on disk.

Those interested in participating in an on-line discussion of articles in New Horizons can send comments to AED_GSEJ@SUVM. These will be published to all readers as part of an electronic forum-like dialog.

3. **Postmodern Culture**

Postmodern Culture is a peer-reviewed electronic journal which provides an interdisciplinary forum for discussions of contemporary literature, theory and culture. It includes finished essays, working papers, fiction, poetry, book reviews, a popular culture column and announcements.
Postmodern Culture is published 3 times a year and is distributed free via electronic mail. A table of contents accompanied by instructions for receiving individual articles or the whole issue is shipped to each subscriber. The journal is also available on diskette or microfiche for $33.00 (US) per year.
Subscribers to Postmodern Culture will also be interested in the related discussion group, PMC-Talk, which aims to supplement and foster discussion of items in the journal.

4. **Psycoloquy**

Psycoloquy is a referred electronic journal which is intended to implement peer review on the networks in psychology and its related fields. It is also implementing "scholarly skywriting", i.e., interactive peer feedback, likewise referred, on accepted contributions.

LIST file viewing and browsing utility

Many computer 'utility' programs have been written for text display and browsing applications. These utilities, once installed on a PC, allow the user to retrieve, view, browse, and perform rudimentary keyword searches on any ASCII-format text file – such as a file containing the text of an electronic journal article.

A number of these viewing/browsing utilities were investigated and tested by the Electronic Journals Group. These included *RLIST, STVIEW, MORE* (2 versions), *LESS*, and *LIST* (3 versions). The criteria used by the EJG to evaluate each utility were:

- uses IBM PC or compatible and MS-DOS as hardware and software platforms
- uses minimal memory
- very simple user interface; availability of 'help' screens
- ability to display text files of a reasonable size (i.e., an entire issue of a typical electronic journal) as well as display the full text of files containing lines greater than 80 characters long.
- quick response time, even when working with long files
- one-key commands for such basic functions as *select file, scroll up/down, help, repeat search, etc.*
- allows copying of files to floppy disk or printer
- ability to perform simple case-sensitive or -insensitive keyword searches
- accompanied by thorough documentation
- modifiable or customizable by a licensed site
- inexpensive; discount for volume purchase; availability of multi-site licensing

After testing, the *LIST* v. 7.6 ('PLUS' version) utility was selected as the most appropriate program for the Library's needs, as it met or surpassed all of the above criteria.

A registered version of *List Plus* v. 7.6 costs $25 US/copy when 2-10 copies are purchased. This includes a diskette containing the most recent version of the utility, notification of updates, and a printed manual. A copy of the *LIST* software license agreement and other purchasing information are attached.

Demonstrations of the *LIST* program may be arranged through Data Library staff (Anna Bombak or Chuck Humphrey; 4-15 Cameron; 492-5212). Copies of *LIST* or printed *LIST* documentation are also available from the Data Library.

A sample tipsheet of instructions on the use of *LIST* to read electronic journal text on a PC is also attached.

Reading electronic journals using LIST

Describes how to use the utility program LIST to retrieve, browse, keyword-search, print, and download files containing the text of electronic journal articles stored on the hard drive of a PC.

Selecting an e-journal article

At the LIST file selection screen, use the arrow (↑↓) keys to move the cursor until the filename of the e-journal article you wish to view is highlighted. Press ENTER.

Scrolling through an e-journal article

You view different parts of the file by scrolling. That is, you use the arrow (↑↓) keys to move the text display in the indicated direction. Pressing the down arrow key (↓) will display the next line in the article; pressing the up arrow key (↑) will move the display back one line.

The PgDn and PgUp keys move the display one full screen in either direction.

Pressing the Home key will move the display to the first line of the e-journal text; the End key will move the display to the last line.

If the line of text you ar viewing is greater than 80 characters long and appears to be truncated by the right-hand margin, type **w**. To return the text display to its original format, type **w** again.

Scanning for text

To find a word or short phrase contained in an e-journal article, you may either search for text without regard to the case (upper or lower) of the letters or search for an exact (case-sensitive) match.

To search for case-insensitive text, type a backslash (\) followed by the word or phrase you are searching for (again, the backslash (\) will not appear).

For example, typing **\chapter six** will find all occurrences of this phrase in the article, whether it is 'Chapter Six', 'CHAPTER six', or 'Chapter six', etc.

To search for exact text, type a slash (/) followed by the word or short phrase you wish to find. The slash (/) will not appear on the screen.

For example, typing **/Chapter** will find the word 'Chapter' but not 'chapter' or 'CHAPTER'.

If the search text is found, both the text and the line containing it is highlighted and displayed in the middle of the screen.

To find the next occurrence of the same search text, press the F3 key. To find the previous

occurrence, press the F9 key.

If the text is NOT found, the message *** Text not found *** will flash at the bottom of the screen.

Printing text

An e-journal article may be printed either in part or in its entirety.

Printing marked text only

To mark lines, you use the Alt-M and Alt-B commands. Use the arrow keys (↑↓) until the first line of the text you wish to print is at the top of the screen. Hold down the Alt key and press m. Use the down arrow key (↓) to scroll forward until the last line of the text you wish to mark is at the bottom of the screen. Then hold down the Alt key and press b. The marked lines will be displayed in reverse video.

After you have marked a range of lines, hold down the Alt key and press 'p' to print all of the marked lines.

Hold down the Alt key and press u to unmark lines.

Printing full article

To print an entire article, hold down the Ctrl key and press p.

Downloading text of e-journal article onto diskette

1. Type q to exit from the text display screen back to the LIST file selection screen.

2. Insert a formatted diskette into the appropriate floppy drive.

3. Use the arrow keys (↑↓) to move the cursor until the filename of the e-journal article you wish to download is highlighted.

4. Type c

The bottom line of the screen will now read: Enter target d:\path ->

5. Type a: and press ENTER if you are using a 5.25-inch diskette.
   Type b: and press ENTER if you are using a 3.5-inch diskette.

Exiting LIST or Selecting a different e-journal article

To exit LIST, type q.
To select a new e-journal article, follow the instructions at the top of the previous page.

CITING ELECTRONIC JOURNALS

Introduction

Electronically published materials can be a valuable information source, and just as with printed sources they need to be cited so that they can be referred to again. This guide suggests some ways to cite these sources using various citation styles. It is based on a paper by Sue Dodd (see citation below).

1. Electronic Journals

There is no final word on citing electronic journals. Sue A. Dodd suggests "common sense plus building on what is currently in place".

Using APA citation style:

White, Daniel R. (1991). "Literary ecology and postmodernity in Thomas Sanchez's Mile Zero and Thomas Pynchon's Vineland" [computer file]. Postmodern Culture. Electronic journal. 2(1). (Access via EMail "GET White-1 991 PMC-LIST F=Mail" "Get White-2 991 PMC-LIST F=MAIL" from LISTSERV@NCSUVM.)

Stigleman, Sue. (1990). "Text management software" [computer file]. Public-Access Computer System Review. Electronic journal. 1(1), 5-22. (Access via EMail "GET STIGLEMA PRV1N1" LISTSERV@UHUPVM1 or LIB3@UHUPVM1.BITNET.)

Novak, Richard J. (1988). "Propaganda and Adult Education" [computer file]. New Horizons in Adult Education. Electronic journal. 2(1), 1-7. (Access via EMail from HORIZON@SUVM.)

Using Turabian citation style:

White, Daniel R. "Literary ecology and postmodernity in Thomas Sanchez's Mile Zero and Thomas Pynchon's Vineland" [computer file]. Postmodern Culture. Electronic journal. 2 1 (1991). (Access via EMail "GET White-1 991 PMC-LIST F=Mail" "Get White-2 991 PMC-LIST F=MAIL" from LISTSERV@NCSUVM.)

Stigleman, Sue. 1990. "Text management software" [computer file]. Public-Access Computer System Review. Electronic journal. 1 1 (1990): 5-22. (Access via EMail "GET STIGLEMA PRV1N1" LISTSERV@UHUPVM1 or LIB3@UHUPVM1.BITNET.)

Novak, Richard J. "Propaganda and adult education" [computer file]. New Horizons inAdult Education. Electronic journal. 2 1 (1988):1-7. Electronic journal. (Access via EMail from HORIZON@SUVM.)

2. **Email and unpublished computer works**

When citing Email letters and other unpublished computer works or forthcoming computer works, Dodd suggests giving as much information as appropriate and includes some examples of how to accomplish that:

Dodd, Sue A. "Bibliographic References for Computer Files in the Social Sciences: a Discussion Paper". Institute for Research in Social Science, University of North Carolina, Chapel Hill, N.C. 27599. (usdodd@uncvml.bitnet) Rev. May 1990.

Cox-Byrne, Sarah. EMail letter to Laura Ann Guy dated October 5, 1989. EMail correspondence.

Jones, Paul. 1989. "What is the Internet?" Academic Computing Services, University of North Carolina at Chapel Hill. EMail. (pjones@samba.acs.unc.edu).

Updegrove, Daniel A., John A. Muffo, John A. Dunn, Jr. Electronic Mail and Networks: New Tools for Institutional Research and University Planning" [computer file]. AIR Professional File. Forthcoming.

For detailed instructions see:

Dodd, Sue A. "Bibliographic References for Numeric Social Science Data Files: Suggested Guidelines." Journal of the American Society for Information Science, 30:77-82. [Z 699 A512 1979 PMC]

Dodd, Sue A. Cataloging Machine-Readable Data Files: An Interpretive Manual. Chicago: American Library Association. Pp. 169-172. [Z 699 D636 1982 HSS]

Signing on to LISTSERV Computer Conferences from VM

What is a List?

A computer conference, or discussion list as it is sometimes called, functions as an electronic bulletin board on a particular subject. You can post a message to the list, and each subscriber will receive the posting. Many subscribe simply to read about topics of interest, without participating actively.
This note deals only with lists accessed using Revised Listserv software.

Subscribing to Lists from VM

A. Menu option

To subscribe to a Listserv, use the tab or down arrow key to move your cursor next to **Network Services** on the VM main menu (the menu with PROFS as the first selection) and press **ENTER**.

On the **Network Services** menu, put your cursor next to **LISTSERV** and press **ENTER**.

On the **LISTSERV** menu, put your cursor next to **SUBSCRIBE** and press **ENTER**.

Type the **listname** where your cursor is now positioned. The **listname** is the name of the List that you wish to subscribe to, which (see samples on the back of this page) is the part of the address before the "@" character. Press the **TAB** key to move to the next field. Type your name next to the prompt. Press **ENTER**. Press PF3 to back out of the menus. For example,

Listname===> govdoc-1 <===

Your Name===> Patricia Rempel <===

Press **ENTER**.

If you forget to press **ENTER**, and exit with PF3, the command will not be issued; you will be returned to the previous menu.

If your command was successful, you will receive an immediate message indicating that your request has been forwarded to the Listserv at the location after the "@" character. (see examples on the back of this page).

Once you have subscribed to a List, a note will appear in your incoming mail that further explains Listserv options.

The **UNSUBSCRIBE** option on the same menu will send a message requesting that your id be removed from the distribution for the List specified.

The message "No LISTSERV distribution list by the name of **listname** is know to exist" or "**listname** unknown" will appear if your command was not successful. If you have used the correct name but it is unknown you can subscribe using the command option if you know the List name and location.

B. Command option

To subscribe to a Bitnet LISTSERV List, type the following instruction after the ===> prompt on the VM or the PROFS Main Menu.

```
===> tell listserv at location sub listname yourname
```

where location is the part of the address after the "@" character, the listname is the name of the list that you wish to subscribe to and is the part of the address before the "@" character, and your name is your name as you wish to be indentified to the list participants.

P. Rempel, 492-1714

Information Technology Services

University Library, University of Alberta

ITT 0017.0692

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For example,

```
tell listserv at psuvm1 sub govdoc-l Particia Rampel
```

Once you have subscribed to a list, a note will appear in your incoming mail that further explains LISTSERV options.

```
tell listserv at location list global
```

To unsubscribe to a Bitnet Listserv List type the following instruction after the ===> prompt on the VM or PROFS main menu.

```
tell listserv at location unsub listname
```

If your listname or location is longer than 8 characters see the tip sheet **PROFS Long Nicknames** ITT 0002.0891.

For a list of some LISTSERV conferences, type the following instruction following the ===> prompt on the VM or PROFS main menu.

What Kind of Lists are Out There?

For a list of some conferences available through Bitnet, put your cursor next to the **LIST** option on the **Listserv** menu, and press ENTER. Below are some of the conferences of interest to librarians.

Listname@Location	Description
ACRLNY-L@NYUACF	Listings of Library Jobs and Events
ALF-L@YORKVM1	Academic Librarian's Forum
ARCHIVES@INDYCMS	Archives and Archivists List
ARLIS-L@UKCC	Art Libraries Association of North America
AUTOCAT@UVMVM	Library Cataloguing and Authorities Discussion Group
BI-L@BINGVMB	Bibliographic Instruction
BRS-L@USCVM	BRS/Search Users
BUSLIB-L@IDBSU	Business Librarians
CHMINF-L@IUBVM	Chemical Information Sources
CIRCPLUS@IDBSU	Circulation and Access Services
CNI-ARCH@UCCVMA	Coalition for Networked Information Architecture and Standards Work Group
CNIDIR-L@UNMVM	Coalition for Networked Information Working Group on Directories
CWIS-L@WUVMD	Campus-wide information systems
EXLIBRIS@RUTVM1	Rare Books and Special Collections Forum
FISC-L@NDSUVM1	Fee-Based Info Service Centres in Academic Libraries
GOVDOC-L@PSUVM	Government Documents
ILL-L@UVMVM	Interlibrary Loan
INFO+REF@INDYCMS	Information and Referral List
INT-LAW@UMINN1	Foreign and International Law Librarians
LIBADMIN@UMAB	Library Administration and Management
LIBMASTR@UOTTAWA	Library Master Bibliographic Database
LIBPLN-L@QUCDN	Library Planning
LIBRARY@INDYCMS	Libraries and Librarians
LIBREF-L@KENTVM	Discussion of Library Reference Issues
LIBRES@KENTVM	Library and Information Science Research
MAPS-L@UGA	Maps and Air Photo Forum
MEDLIB-L@UBVM	Medical and Health Sciences Libraries
MLA-L@IUBVM	Music Library Association
NOTRBCAT@INDYCMS	Rare Book and Special Collections Cataloguers
OFFCAMP@WAYNEST1	Off-Campus Library Services List
PACS-L@UHUPVM1	Public-Access Computer Systems Forum
PACS-P@UHUPVM1	PACS-L Publications Only
SERIALST@UVMVM	Serials Users Discussion Group
SPILIB-L@SUVM	Spires Users Discussion Group
USMARC-L@MAINE	USMARC Advisory Group Forum
Z3950IW@NERVM	Z39.50 Implementors Workshop

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October 11, 1993

TO: David Farrell, AUL Collection Development
FROM: Electronic Journals Task Force:
Margaret Baker
Joe Barker
Bernie Hurley
Laura Osegueda
Vivienne Roumani-Denn
Lisa Rowlison
Chuck Eckman, Chair
RE: Report

The Electronic Journals Task Force was given a five-fold charge in July 1992 (see attachment A). As described in our Preliminary Report (November 24, 1993), the Task Force quickly fulfilled the first component of its charge by establishing an ongoing information-gathering mechanism. At that time, the Task Force also recommended a two-track pilot project making a small number of representative electronic journals available through test versions of INFOCAL and two client-server systems being reviewed by the Sparkplug Implementers Group (Gopher and WAIS).

Although the INFOCAL component of the proposal ultimately was tabled as a result of recommendations of a joint IS&T/Library review task force, the Electronic Journals Task Force proceeded in working with the Sparkplug Implementers to create e-journal prototypes on both Gopher and WAIS during the months of March-May 1993. During June-August 1993 the Task Force focussed on fulfilling the remaining components of its charge related to processing, access, training, and selection. The Task Force met twice with the Library Server Policy/Procedures Task Force which was also dealing with processing and selection issues related to the handling of electronic text in The Library. Under the leadership of Vivienne Roumani and Margaret Baker--as well as the cooperation of The Library's English selector, Michaelyn Burnette--a small faculty/graduate student focus group was formed from members of the English Department. The focus group was interviewed on issues related to access mechanisms for electronic journals (see attachment B for the focus group summary).

The following recommendations are based on the above work:

Recommendation 1: Processing

The Task Force has consulted with several Library staff and groups regarding developing an effective process and policy for providing access to electronic journals. It was the consensus of the Task Force that processing for electronic journals be mainstreamed within existing Acquisition and Catalog Department workflows as much as possible. EJTF has already expressed its recommendations regarding acquisition processing and cataloging of electronic journals through its comments on the *Report of the Library Server Policy/Procedures Task Force*, and these issues are currently being addressed in the appropriate Library policy-making bodies.

Recommendation 2: Selection

The Task Force reached consensus that existing Library selection policies as reflected in the document "Collection Policy Governing Machine Readable Data Files" (July 20, 1987, appendix to the *Guide to Collection Management at the University of California, Berkeley*) be applied to the selection of electronic journals. This view was also reflected comments made by EJTF and incorporated into the *Report of the Library Server Policy/Procedures Task Force*. The Task Force believes that this new publication type poses no significant challenges to the traditional selection policies already in place in the Library. Selectors are particularly well-situated in terms of academic departmental contacts and bibliographic knowledge to make the acquisition and retention decisions that will be common in the emerging electronic library.

Recommendation 3: Access

The Task Force recommends the use of the Library Gopher currently being developed by the Gopher Implementation Group. In addition, we recommend that the implementation of electronic journals take into account the specific criticisms contained in the focus group report under "Mechanics". The manner in which electronic journal files are loaded and indexed might effectively respond to some of the criticisms.

Although the focus group provided criticism of the versions of WAIS and Gopher that they encountered (screen-based WAIS and simple Gopher), they did agree that Gopher is an easier system through which to maneuver. Second, Gopher is currently the most popular of the client-server systems available, and its wide acceptance and use as an electronic journals access system suggests that there will be future improvements. Third, Gopher will not be the final access system and it should be possible to migrate electronic journals from this to an improved system if one becomes available.

Recommendation 4: Training

The Library has effective mechanisms in place for staff and user instruction. The Task Force recommends that electronic journals can mainstreamed within these mechanisms. *Staff training* for access to electronic journals should be handled by ISIS. *Library user training* for access to electronic journals should be a normal part of Library public services, included in the repertoire of user training programs conducted in the Main and branches. It is likely that there will be Gopher techniques that are generic across full text files in the Library Gopher and this type of instruction falls within the purview of the Teaching Library in the same fashion that GLADIS/MELVYL training is handled. Subject-specific training in access to electronic journals should be handled by subject specialists in the Main and branches.

Recommendation 5: Ongoing Evaluation

Due to the comments of the faculty focus group, we suggest that the focus group project be extended. Specifically, we suggest that another focus group be identified--preferably from a science department--in order to identify additional enhancements to electronic journal access based in part on the questions asked of the English Department group and exposure to an enhanced Gopher client.

Recommendation 6: Printing/Downloading Workstations

EJTF anticipates that the addition of electronic journals to the Library Gopher --and the promotion of these journals through the Library's instructional programs as described above--will generate intensive use of the Gopher in the Library's major public service units. Although users can be referred to any one of the several IS&T Computing Facilities for access during general access hours for the purpose of printing or downloading journal text, EJTF strongly recommends that The Library move toward the installation of printing/downloading workstations as significant Library collections become available only in electronic format.

Recommendation 7: UC Press

During the past year EJTF was instrumental in forming a cooperative partnership between the Library and the UC Press Networked Publications Task Force. In the event that the UC Press journals component of the project is approved as a CNI Initiative, these ongoing meetings should be formalized to include DLA representatives.

Recommendation 8: Task Force Organization

The Task Force recommends that a new or modified Electronic Journals Task Force be charged with guiding and evaluating phase two of the project during which it moves from the prototype development phase to the production phase. This phase-two Electronic Journals Task Force would focus on the issues that will be crucial during the production phase:

- evaluating the implementation of the production system
- continuing the focus group work initiated during phase one EJTF
- ensuring that the training goals described above are functioning
- serving as Library liaison to UC Press Networked Publications Task Force
- continuing the original phase one EJTF information-gathering and dissemination charge

The Task Force has already lost Lisa Rowlison (ISIS) and a person who serves as LSO-ISIS liaison should be appointed in her place. In addition, the Task Force should have a new chair as it enters a second year with a new focus.

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Task Force on Electronic Journals

Final Report, June 7, 1993

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6/7/93

Summary of Recommendations

1. Electronic Journals at CUL:
The Task Force recommends that the Library acquire electronic journals using the same criteria of value used for other formats. The planning done to support access to electronic resources should not focus on particular technologies or formats, but rather on infrastructure and staffing needs. Because the Task Force was unable during its experiment to gather sufficient data on costs, the Task Force recommends that a small pilot project be mounted, for a period of six months. A 1/2 time librarian should be assigned to this project, with sufficient support from the Library Technology Office to determine staffing needs and costs of providing the best possible access to electronic journals.

2. Selection:
The committee recommends that subject rather than format guide the identification of selectors. That is, the responsibility for selecting electronic journals will fall to the same individuals who manage the collections.

3. Acquisitions:
Electronic journals should be ordered through acquisitions departments, and Order/Pay/Receipt records created on NOTIS. Payments should be made for subscription costs with charges recorded against appropriate selectors' funds.

4. Archiving:
The Cornell Library must continue to fulfill its archival obligation to its users and society. In these initial stages of the evolution of electronic journals, the Library should acquire and archive those electronic resources needed by users.

For titles the Library archives, receipts should be monitored and detailed holdings displayed, as is the case with serials in other formats. Where

possible, automated procedures should be utilized to receive the e-mail files, process and transfer them to a server.

5. Cataloging:
Titles should be cataloged in accordance with emerging standards and guidelines for cataloging electronic publications. Although national standards do not yet allow paper and electronic forms of the same title to reside on the same bibliographic record, the Task Force believes that a single bibliographic record will facilitate access to these titles, and recommends that Cornell follow this path. Each title should be assigned a location or locations, designating the appropriate file servers. Titles should be classified in order to provide broader access.

6. Resource Sharing:
Where another site maintains an adequate archival record of a needed journal the Task Force recommends that the Library "share" the resource. The Library should be prepared to enter into cooperative agreements with other interested institutions to ensure that adequate coverage and redundancy is maintained for those titles deemed necessary for our users.

The Task Force recommends that titles selected for the collections but not loaded on a local server receive full cataloging in order to provide appropriate access. Since the Library would not be receiving issues for these titles as they are published, no detailed holdings records would be maintained. However, these titles should be monitored and records adjusted if they ceased publication and/or for any reason were no longer available.

7. Public Services:
It is essential that the Library position itself to provide adequate public access to electronic journals as they increase in importance and become a larger part of our collection responsibilities. Moreover, the Library should strive to provide as seamless an interface as possible between the user, the online catalog, and electronic resources owned or licensed and institutionally supported by the Library. In addition, the Library needs to take a leadership role in providing training for access to electronic resources.

8. Formation of Ongoing Task Force:
The Task Force recommends that the Library establish a special task force, consisting of public services, collection development and technical services staff knowledgeable about the issues of OPAC access, to design a structure to accommodate all needs for the current electronic information access projects at Cornell.

9. Standards Development:
The Library, through its contacts with publishers of electronic information, should lobby for the establishment of publishing standards for electronic journals. Such standards should include header information, markup, indexing and file names.

10. Copyright Issues:
The Task Force recommends that a staff member be assigned to monitor copyright developments on behalf of the Library. Until the broader issues are clearer, the process of securing permission to acquire and mount an electronic journal locally should be carried out by the acquisitions staff at the appropriate processing center.

11. Hardware/Software:
The ideal client configuration at this time seems to be a Macintosh computer with at least 8 MB of RAM, running System 7.1, with an Ethernet connection and Mac/TCP.

UNIX machines should be the choice for any library servers disseminating electronic journals. The server software (WAIS or Gopher) that seems most appropriate for distributing electronic journals is at present most highly developed and sophisticated in UNIX versions. A UNIX Gopher server incorporating WAIS indexing seems to be the best choice from the public service perspective.

I. Introduction and description of Task Force

On March 3, 1992, Ross Atkinson created the Task Force on Electronic Journals, to consist of David Block, Christian Boissonnas, Rich Entlich, Constance Finlay, Florence Hayes, Diane Hillmann, Lynne Personius (replaced later by Bill Turner), and John Saylor. Steve Worona, of CIT, joined the group several months into its existence. The scope of the group was broad, to include policies and procedures for the acquisition, cataloging,

storage, maintenance and provision of access to electronic journals.

More specifically the group was charged to consider the following questions:

- What is an electronic journal?
- What criteria should selectors apply in their selection of e-journals? Should, for example, selection of electronic bulletin boards and newsletters be in scope?
- Should the library relay e-journals to Cornell users? If so, how would this be accomplished, and who would be responsible? Or should the library not relay e-journals at all, but rather simply arrange to have them sent directly to Cornell users by the publisher?
- If e-journals should be acquired or received by the Library, how should this be accomplished? Who would have responsibility for managing such receipts?
- What adjustments to processing procedures would be necessary in order to subscribe to, renew and claim e-journals?
- Should e-journals be archived? If so, in what form? (paper? diskette?) What procedures and resources would such archiving require?
- Should the selection of e-journals be the responsibility of all selectors, or should the Library designate an individual "electronic resource selector," who would have a separate budget line and would select electronic materials on all subjects?
- What decisions will need to be made in order to catalog e-journals in NOTIS? How, for example will locations be designated?
- What separate hardware, software or programming costs would attend the acquisition of e-journals?
- What will be the impact of e-journal subscriptions on public service responsibilities and work loads?
- Are there any special copyright problems or other potential legal complications that may affect our ability to acquire, maintain, or relay e-journals?

The original plan was to take 6 months or less to research and consider this questions, and report back to CDEXEC some recommendations for proceeding. Other university libraries were also engaged in similar tasks--some had already issued reports, others were still in early stages.

After selecting a chair (Diane Hillmann) and establishing an online discussion list (ejo-l@cornell.edu), the Task Force focused on a working

definition of "electronic journal," and the setting down of some initial assumptions:

Definition:

An electronic journal includes the following elements:

- periodicity (though not necessarily standard enumeration and chronology);
- a machine readable format;
- the capability of distribution via telecommunications networks.

This definition includes moderated and unmoderated, reviewed and unreviewed discussion lists, newsletters and LISTSERV conferences.

Assumptions:

1. Libraries have the primary role to play in the management of electronic journals, including the basic areas of selection, access and archiving.

Already parallel processes for "selecting" materials for various servers across campus are creating a situation in which the library is in danger of becoming superfluous. Continuing confusion between the perceived role of the libraries and CIT in making available electronic information may tend to muddy the waters further. There may not be much more time left to "institutionalize" this process and assure that availability is not confused with access.

2. As much as practicable, policies and procedures for electronic journals should be based on policies and procedures already in place for other formats.

Over the past few years the Library has coped with a number of new formats for library materials within the framework for selection, acquisitions, cataloging and circulation originally established for print materials. As the VTLS report states: "We have not previously discriminated against information because of its format, and this is not the time to start." Clearly electronic resources force us to modify and adjust our procedures to handle them effectively, but the Task Force is confident that it can be done. We are assisted in this endeavor by the knowledge that many other libraries are in the same boat, and we will learn from others as others learn from us.

The primary impediment to moving forward in the area of electronic resources continues to be the limitations in hardware and infrastructure within the library system. Another factor is the complicated relationship between the Library and CIT, wherein it is not always clear who is leading whom and in what direction.

3. Consistent with their traditional role, libraries have responsibility for ensuring the archiving of electronic journals. Under some conditions, remote access may be an adequate substitute for ownership.

Certainly it is not necessary for the Library to archive all the titles chosen by selectors, and indeed, some titles may be adequately archived at other sites. It seems clear that there may be significant cost savings in pointing to remote servers rather than archiving titles locally. But like shared cataloging, shared responsibility for archiving and maintaining electronic journals must be based on agreed upon standards and institutional cooperation. The Library should be prepared to enter into cooperative agreements with other interested institutions to ensure that adequate coverage and redundancy is maintained for those titles deemed necessary for users.

Consideration of library use of electronic resources assumes a new connection between ownership and library access. It will be necessary to continue to explore the limits of the library's ability and willingness to provide access to resources available across campus which the Library may not be responsible for purchasing or maintaining.

4. Technology will continue to evolve faster than the Library can plan. The planning done to support access to electronic resources should not focus on particular technologies, but rather on infrastructure and staffing needs.

During the year the Task Force has explored the issue of access to electronic journals, it was clear we were aiming at a moving target. Whatever recommendations made about appropriate software and hardware will be dated in several months time, to be replaced by the new and improved. Of more long standing utility will be what we can offer in identifying basic support requirements which will allow the library to select electronic journal titles and provide OPAC access to our users for those titles.

II. Electronic journals - local issues

A. Selection

The principal issues in the selection of electronic journals are: who will select, and what criteria will guide selection?

The committee recommends that subject rather than format guide the identification of selectors. That is, the responsibility for selecting electronic journals will fall to the same individuals who manage the print collections. This is consistent with existing collecting development strategies in the library and with the committee's assumption that existing policies should govern the inclusion of this new medium, wherever possible.

Selection itself should also be guided by traditional criteria, principally the importance of the source for documenting developments in subjects and areas. However, bibliographers will face some new issues as they begin to deal with electronic resources. A new set of selection tools-- network-based and volatile-- will replace paper sources. Thus selectors will need training and increasing expertise in grazing the Internet to identify new sources of information. Selection of electronic journals also implies additional attention to how materials will be archived. Electronic journals present two basic alternatives: local storage or accessing a remote host--and myriad variations. But some determination on how a source is to be archived will need to accompany the selection decision.

B. Processing

Discussion of processing issues in this report falls into two categories, technical services (cataloging, holdings maintenance) and data processing (file manipulation, indexing, etc.). This separation is based on the reality of the expertise available within the libraries to do the work, not on any ideal of how these tasks should be allocated.

1. Technical Services

In accordance with our assumption that procedures for electronic journals should be based on those already in place for other formats, the Task Force recommends that electronic journals be ordered through acquisitions

departments, and that appropriate Order/Pay/Receipt records be created on NOTIS. Payments should be made for subscription costs with charges recorded against appropriate selectors' funds.

Titles should be cataloged in accordance with emerging standards and guidelines for cataloging electronic publications. Each title should be assigned a location or locations, designating the appropriate file server or servers. Titles should be classified, in order to provide broader subject access.

Although national standards do not yet allow paper and electronic versions to reside on the same bibliographic record, the Task Force believes that standards are moving in that direction. In our experiments, when paper analogs existed, we added the electronic versions to the same record, and found that approach practicable.

For titles for which the Library maintains an archive, receipts should be monitored and detailed holdings displayed, as is the case with serials in other formats. Where possible, automated procedures should be utilized to receive the e-mail files, process and transfer them to a server. For titles where this is not possible, it might be necessary for acquisitions staff to receive e-mail files and check them in before sending them along for indexing and any other reformatting that may be appropriate. Such a procedure should be little more burdensome than recording the receipt of paper titles. Claims should be submitted for missing or unduly late issues according to the same criteria established for other titles.

Other titles may be selected for the collections but not mounted locally. The Task Force recommends that such titles receive full cataloging in order to have appropriate access. Since the Library would not be receiving issues for these titles as they are published, no detailed holdings records would be maintained. However, these titles should be monitored and records adjusted if they ceased publication and/or for any reason were no longer available. Such monitoring could be accomplished simply by having an action interval on NOTIS to alert acquisitions staff that the title should be reviewed.

2. Data formatting and processing

In 1993, the world of network communications continues to be dominated by a few important standards. One of the most significant in terms of the development of electronic journals is the vt100 terminal emulation

standard. Widespread use of the vt100 standard in terminal emulation software and in user interface programming permits a diversity of end user hardware to successfully operate with application servers running a many different software packages. The compatibility "glue" provided by the standard has played a significant role in the growth of networked information retrieval, but to whatever degree terminal emulation standards have helped hold the Internet together, they have also mired it in a very sticky situation.

The price paid for compatibility has been the great limitations that vt100 emulation places on network applications. The vt100 was a monochrome, character-based terminal, capable of handling ASCII characters and a primitive line and box-drawing set. Unfortunately, there are few disciplines whose subject matter can be adequately represented with simple ASCII text. The vast majority of scholarly print journals employ characters outside of the ASCII set and/or utilize graphics of one sort or another. Thus there is a tension between adherence to vt100 and the very concept of an electronic journal which can, at the very least, reproduce the content of existing print journals.

Of course, once migrating to the digital arena, there is no longer any reason to limit journals to text and graphics. It is hard to imagine that mature electronic journals in ornithology will lack audio or that those in surgical procedure will omit moving video.

In a world which is increasingly dominated by client-server architecture, high-speed color workstations and high bandwidth networks, it may seem quite legitimate to ask why we based an electronic journal experiment on a group of journals that consist exclusively of plain ASCII text. A partial answer is that while increasingly widespread, the levels of technology necessary to move beyond ASCII-only journals are not universally available on the Cornell campus (or most other campuses). In particular, quite a few buildings still lack Local Area Networks (LANs) and rely on modems or dedicated asynchronous lines for access to the campus network, greatly limiting their telecommunications options. Support for SLIP (Serial Line Internet Protocol) will help mitigate this problem to some extent, as will installation in more buildings of a relatively inexpensive Ethernet offering from Cornell Information Technologies based on unshielded twisted pair (10-Base-T) using existing telephone

wiring. Nevertheless, SLIP is too slow to accommodate image data (e.g. full page bitmaps) and there is still a significant population of old, monochrome, character-based PCs in use.

For this reason, virtually all systems for delivering machine-readable information resources to patrons on the Cornell campus have been targeted towards vt100 emulation as a "lowest common denominator" solution. Some projects on campus such as CORE (Chemistry Online Retrieval Experiment) and the Cornell Digital Library Project are starting to target more advanced technologies for networked delivery of machine-readable data (e.g. X Window System and operating system-specific clients) in large measure because they have non-ASCII data which must be delivered by some mechanism other than ASCII terminal emulation.

The Task Force chose to make its test journals available via gopher and WAIS, both client-server applications which, given the server versions installed, are capable of delivering image and audio information in addition to text (albeit via proprietary mechanisms). We installed text-based unix clients of both applications for use by users who could not run machine-specific clients on their Macintoshes or PCs. However, the limitations on the content of the data ultimately meant that users who were running their own client (e.g. WAISstation or TurboGopher) had very little added functionality compared to their vt100-based colleagues.

The other part of the answer to why we experimented only with ASCII-text journals is simple availability. A decision was made early on to use only journals available without subscription fees and for which we could obtain permission to distribute electronically on campus without charge. It is clear that publishers of such journals have been strongly influenced by the desire to avoid compatibility problems on their subscriber's computers. Of 36 network-distributed journals identified by Michael Strangelove in his most recent survey, 26 are simple unadorned ASCII text.

It should probably be noted that incorporating anything other than ASCII text into a document to be telecommunicated also requires more effort, more sophistication, and potentially more expense on the part of the publisher. Thus it seems likely that ASCII will continue to dominate the "free" electronic journal scene until the tools and technologies for moving beyond it on both the publishing and subscribing ends become cheaper and far more ubiquitous.

Many ejournals available over the net can be obtained via more than one route. Almost all available titles (except those using non-ASCII formats) are typically emailed to subscribers, where they can be read, as is, from right within the mail system. These same files are often also made available via ftp or, in the case of some BITNET only titles, via the Revised Listserv file transfer mechanism. We actually opened mail subscriptions to all of our test titles, but those responsible for loading the data for access under gopher and wais typically found it easiest to pull issues en masse from ftp sites and listserv archives. At the very least, this generally made it unnecessary to have to remove mail headers from every file.

At its most rudimentary, making ASCII ejournal files available for searching under WAIS and browsing (and searching) under gopher actually doesn't require much preprocessing. It's nice to remove mail headers (a fairly trivial process which can be automated), but even that isn't absolutely necessary. In fact, the level of processing required depends most heavily on what level of functionality and quality the library wishes to offer. Of particular concern is searching, since it is an area over which the manager of a gopher or WAIS installation has some control.

A typical WAIS server provides non-Boolean full-text indexing without support for fielded searching. Plain vanilla gopher servers provide a hierarchical menu structure to facilitate browsing of documents. Gopher optionally supports the use of WAIS indexes, and there is a version of the WAIS server for Unix (by Don Gilbert of Indiana University) which supports the use of Boolean operators, partial word searches (stemming) and literal phrase searching. The same WAIS server can be used to support searches under both WAIS and gopher. We installed WAIS behind gopher with the Gilbert extensions, and the standard WAIS server for the WAIS installation.

In both environments, there is a decision to be made about the level of indexing to provide. Should a single monolithic index be created, or should separate indexes be made at the volume level, issue level, article level, or some combination? Our WAIS server provided collection level searching (all five titles at once) and journal level searching (multiple years of a single journal). With gopher, it is easier to make it apparent to users that finer levels of searching are available. We created an entire

directory for different levels of searches available for each journal. For infrequently published titles (e.g the thrice-yearly Postmodern Culture) we indexed at the issue level. For more prolific titles (e.g. Bryn Mawr Classical Review), we indexed at the volume level. However, we could have indexed all titles down as far as the issue level without any special preprocessing.

Indexing at the article level and below begins to raise some processing issues and questions about the limitations of the information delivery environments we were testing. We could easily have indexed Postmodern Culture at the article level, since PMC releases individual articles as separate files. This is not true of most ejournals on the net. None of the titles we worked with offered any files at the sub-article level. However, since traditional information retrieval systems provide fielded searching, we decided to do some experimentation with providing it, even though gopher and WAIS have no explicit mechanism for supporting it.

There are a couple of different ways of approaching fielded searching using WAIS. All involve identification of the subcomponents of electronic journal files so that terms from titles, authors, etc. can be separately indexed for searching. Publishers of network based ejournals are not yet providing much help in this area.

We did also attempt to create some separate indexes for author and title information using WAIS under gopher, and then to have the retrieved items bring up for viewing the full file from which the indexed term was derived. We had some technical problems with this technique and time constraints have not permitted work to proceed, but it seems like a potentially fruitful avenue to pursue.

One might legitimately ask how important fielded searching is in a full-text environment. This remains a subject of debate amongst information specialists. However, there is fairly widespread agreement that users have difficulty reading large amounts of text on computer displays. Publishers of print journals go to great lengths to improve readability on paper through the graphic design process and the attributes (size, weight, style, etc.) of the type they use. Although ASCII text (especially in a vt100 environment) offers little flexibility in terms of presentation, even the little bit of structure that can be provided with the elements available (e.g.

spaces, tabs, blank lines, border characters, etc.) is often ignored. Most publishers of ejournals would do well to pay more attention to this area, as it is not an area in which republishers or archivers are likely to invest much effort.

The library should be paying close attention to developments that will allow electronic journals of greater sophistication and which more closely approximate the functionality and content of today's print journals to be achieved. Emerging protocols and standards of interest include:

1) SGML (Standard Generalized Markup Language), a document interchange standard for full-text which permits references to non-ASCII characters, although the markup itself is ASCII-based.

2) MIME (Multipurpose Internet Mail Extensions) is "a freely available specification that offers a way to interchange text in languages with different character sets, and multi-media among many different computer systems that use Internet mail standards." (MIME FAQ)

3) Acrobat. A document interchange standard from Adobe (the PostScript people). "Adobe Acrobat software allows users to send documents created on their computer to other computers, regardless of hardware platform, operating system or applications software used to create the document. The document can be read, annotated, printed and stored by the receiving computer. Adobe Acrobat products preserve the integrity of the document's essential look and feel, and provide tools to aid the receiver in navigating through the document." (Acrobat press release)

4) Gopher+ An extension of the well-known gopher protocol which provides data interchange capabilities for most of the types described under MIME (above).

Some of the above standards and protocols are already available, and others are just becoming available. A message put out by the publishers of "The Electronic Journal of Extension" describing their distribution plans says "Other future enhancements include the use of MIME (Multimedia Internet Mail Extensions) and likely use of Adobe Acrobat's PDF (Portable Document Format). Thus network ejournal publishers are already aware of their potential value.

C. Access through OPAC

Because the Task Force is recommending that electronic journal titles be fully cataloged, OPAC users will enjoy all the traditional forms of access, including title, subject, corporate author, classification and standard number (ISSN).

For our experiment in accessing ejournals, the Task Force devised a structure to display locations and signon instructions using server locations, explain screens and notes to provide basic information for OPAC users. It was clear to us that the limitations of NOTIS were a significant impediment to providing a reasonable OPAC display, but, for the short term, the Task Force believes the structure we set up to be adequate. For the longer term, the Library needs to prepare for improvements in technology which will allow OPAC users to sign on directly from an OPAC display.

This past January ALA/MARBI provisionally approved a new holdings field, tagged 856, designed to provide a place in the holdings format to carry information which will support automatic signon in the future, as well as user instructions for the present. Although NOTIS does not currently support the display of this information, this field can be used now to code information for locally available and remotely available titles. The Library should also look at ways to manipulate NOTIS displays to make the information available to users, possibly by temporarily displaying it from the bibliographic record.

Clearly, OPAC access issues go beyond this one project--they affect all of the electronic access areas in which Cornell is involved. The discussions and solutions for all these projects should be occurring together, not as part of the decision mechanisms for each separate project. For this reason, the Task Force recommends that a group consisting of public services and technical services staff knowledgeable about the issues of OPAC access be convened to design a structure to accommodate all needs for the current electronic information access projects at Cornell.

D. Storage and Archiving

Until quite recently, the cost of storing and archiving an electronic journal was a major consideration for an institution. When the only reliable storage was mainframe disk drives, programmers routinely managed the

valuable resource by determining how quickly files could be moved to less expensive off-line storage such as tapes.

The effect of the continuing dramatic increases in the capacity and reliability of disk drives for desktop systems and the resulting dramatic drop in the cost per megabyte of reliable storage has permanently changed this situation. It is quite feasible to keep extensive archives available online for indefinite periods. For one-time investment of $15,000, anyone can acquire a workstation with ample disk capacity and a tape backup unit that will allow archiving the entire contents of any of the electronic journals included in this study.

The complete 1992 archives of the largest of the journals, Humanist, totaled 3.5 MB (million bytes). The combined WAIS indexes of these files totaled another 7.5 MB. Thus, storing one year of Humanist requires 11 MB of disk space. These figures are without data compression, which can reduce file sizes by 50%. It can reasonably be expected that any electronic journal distributed in ASCII form will be of the same order of magnitude in size. Image files are significantly larger. In the Digital Library project, a 600 dpi bitmap image of a single page, compressed using CCITT Group 4 compression, requires about 50 KB. A lower- resolution image intended for viewing rather than printing requires about 15K. Thus, an 80 page journal would require about 5 MB of storage; 12 monthly issues would require 60 MB. As it is likely that similar indexing would be desired, another 5-10 MB of indexes per year would be generated. Although this is much larger than the ASCII format, it is still quite inexpensive. Gray scale images are significantly larger, but for that reason are not often used in publishing; when storage prices decline (and network speeds increase) so that gray scale images cost as much as bitmaps do today, they will become more prevalent.

Currently, the purchase price of reliable workstation disks (with a 5-year warranty) is about $1 per MB in increments of 2 GB (billion bytes). A tape backup unit costs about $2,000, and each tape costs about $20. A single tape holds 2 GB. Typically, every two years the cost of disk storage drops by half.

If, in order to offer electronic journals online, an entirely new server is purchased, significant additional expense will be incurred. Among these will be the maintenance costs for the server (including both hardware servicing and software support), the cost of its portion of a computer

room, operations charges (the human operator who sees that the machine is running, performs the backups, etc.), and networking costs. However, the actual amount of computing resource required to provide access to electronic journals is modest. It is much more likely that this function would be added to an existing server, with the net cost being only the additional storage requirements.

Overall, the costs of storage and archiving are simply not significant in making a decision whether to store and archive material.

Of much more interest is the issue of whether material should be stored locally. When the publisher of an electronic journal commits to making the current issue and the archives available over the network via standard protocols (such as WAIS, Gopher, or FTP) essentially all the time, there is little to be gained by maintaining a duplicate copy locally. In fact, doing so introduces several difficulties which are better avoided. For example, mechanisms must be established to guarantee that the local copy is always in synch with the official copy, and that the most recent issue is always received and added to the archive even when there is a service disruption. In addition, copyright issues must be addressed.

Where the publisher cannot guarantee such service, the arguments for local mounting become stronger. In fact, if Cornell deems the material to be of value, Cornell should consider becoming the official archive site. This would involve little additional work and marginal additional expense, while resolving some of the ownership and synchronization issues.

E. Hardware/software and connection issues

For the foreseeable future, the campus population as a whole will probably have very uneven access in terms of Ethernet connections or adequate hardware. Therefore, it is essential that the Library position itself to provide adequate public access to electronic journals as they increase in importance and become a larger part of our collection responsibilities. Moreover, the Library should strive to provide as seamless an interface as possible between the user, the online catalog, and electronic resources owned or licensed and institutionally supported by the Library.

In terms of connection issues the Task Force members and our experimental group of librarians found that Macintosh computers were easier to set up and use than DOS machines. They also found the client interface for Gopher and WAIS easier to understand on Mac machines. DOS software is being improved and interoperability across platforms is closer to becoming a reality, but until that happens, the ideal client configuration at this time seems to be a Macintosh computer with at least 8 MB of RAM, running System 7.1, with an Ethernet connection and Mac/TCP.

The Task Force experimented with two types of retrieval software; WAIS, or Wide Area Information Service, developed by Thinking Machines Corporation, and Gopher software from the University of Minnesota. They both use a client/server architecture in which the client software resides on the user's machine and makes the connection to a server that provides the text and indexing. They are shareware and as experimental systems, are being modified and improved constantly. The Task Force did not have an opportunity to try a third type of retrieval software, WorldWideWeb (WWW). Each of these systems has strengths and weaknesses that make them complementary.

WAIS, a sophisticated non-Boolean search system, uses a natural language algorithm incorporating frequency-based indexing, relevance feedback, relational value weighting and a graphical user interface which enhances natural language subject searches on full-text, but is far less effective for known item searches. Searches on WAIS may bring up inconsistent and inaccurate results depending on variations in the linked servers, and since the underlying structure of the indexing is not apparent to the user, it is difficult to refine the search to reduce false drops.

Gopher provides an easily understood Graphical User Interface (GUI) based on a hierarchical structure of file folders and files. Electronic journal indexes may be browsed, and known items retrieved with simple Boolean searches.

Gopher and WAIS both provide transparent links to other servers at remote locations, but at this time neither support text files other than plain ASCII. WWW is a higher end delivery system that allows text to be tagged to retain graphical formatting for transmission and printing.

Clearly, UNIX machines should be the choice for any library servers disseminating electronic journals. The server software (WAIS or Gopher) that seems most appropriate for distributing electronic journals is at present most highly developed and sophisticated in UNIX versions. Also the Library and CIT are already supporting UNIX for the IBM RS6000 machines that will be running INFOSHARE and for CUINFO in its Gopher incarnation.

If we were to design a "virtual system" out of these components for a server disseminating electronic journals and other full-text electronic resources it would include the natural language relational search capacity of a WAIS index, the hierarchical structure and ease of use of Gopher, sophisticated Boolean search capabilities, and markup for formatting text. Perhaps one server would support a variety of clients so that users could select whatever GUI they prefer. While we are waiting for the evolution of such a system, a UNIX Gopher server incorporating WAIS indexing seems to be the best choice from the public service perspective. The gopher client is easily understood, requires little training to use and search, is widely available, and the server software is already being supported at Cornell for CUINFO and for servers at Mann Library and the Law School.

The Library needs to take a leadership role in providing training for access to electronic resources. As electronic journals and other online resources become more widely used, staff and user training will be in high demand. The diversity of computer environments in the library and across campus make training a particular challenge. The use of Bear Access will simplify these issues for some users, but not yet for others.

III. ELECTRONIC JOURNALS--THE WIDER ISSUES

The Task Force discovered, while we were trying our experiment with electronic journals, that many of the difficulties we encountered both conceptual and practical involved the world beyond Cornell. We were hampered by lack of standards, lack of information about relevant costs, and the extraordinarily complex issue of copyright.

1. Standards:
Every journal that we tried to process was different, either in format or in the way it could be obtained. There are no standards telling publishers of

electronic journals that they should have a title in a certain place meeting certain criteria, an ISSN, a table of contents in a certain format, or a numbering system either for articles or for issues. For libraries to provide bibliographic control under those conditions is problematical at best.

What would be most useful, and probably the least work for publishers is a version of their publication which has some kind of minimal embedded markup. For starters, an ASCII markup such as that used by the Unix refer program or BRS/Search would help a great deal. Ultimately, a more sophisticated document interchange standard such as SGML would have the most value, but it is probably not realistic to expect many publishers to adopt SGML until there are more readily available tools for its use on a variety of platforms. (This situation, however, is changing rapidly).

If publishers are unwilling to provide markup of any kind, the next best option is some attempt at consistent format. It is probably too much to expect consistency from one title to the next, but the current crop of ejournal titles are not even consistent from one issue to the next. This means that it is not even worth the effort to develop a processing program which could recognize the structural elements of a particular title and label them for indexing purposes.

Not all ejournal publishers have been completely delinquent in this area. New Horizons in Adult Education (not one of the titles chosen for this experiment) has a very consistent layout. Other publishers (e.g. those for Postmodern Culture and Bryn Mawr Classical Review) are at least providing table of contents documents. BMCR is the most advanced in this area, as it provides a cumulative index that contains author, title and reviewer information in a relatively useful format for processing. BMCR also provides an important aid for sites mounting its files under a Unix gopher server. A special file (labeled '.cleaner') can be executed which automatically creates a set of '.cap' files. Cap files permit longer, more meaningful names (than the actual names of the files) to appear in gopher menu hierarchies. BMCR's .cap files consist of issue number, author, title and reviewer. The Unix gopher client allows menu information to be searched separately from the contents of the files, thus providing a kind of primitive fielded searching without a lot of extra work.

The Task Force believes that the library profession, through its professional associations, and the Library through its contacts with publishers of electronic information, should push for the establishment of publishing standards.

Also needed are standards for the software developed to access and retrieve information. Gopher and WAIS are emerging as likely contenders to become leaders in this area. It is possible that one, or both may establish de facto standards. This may not be a problem if they are designed to satisfy the needs of the library community. The Library has much to gain in ensuring that this does, in fact, happen.

Finally, one of the areas which present us with the greatest difficulties is archiving, for which there are also no standards. The Cornell Library must continue to fulfill its archival obligation to its users and society. Prudence, therefore, would seem to require that the Library acquire and archive those electronic resources which users will need. If acceptable archives are maintained elsewhere this is a waste of resources. The Task Force supports the idea that each title should have a "site-of-record," usually but not necessarily the institution where the title is produced. This site would be responsible for maintaining the archive for that title following agreed upon standards.

2. Cost considerations

From our experimentation the Task Force concluded that, initially and for a period of undetermined length, processing electronic journals will cost more than processing the paper versions, largely because of the labor required to manipulate and index files. The Task Force was unable to determine costs with any precision as our sample of journals was too small and there was much variation among the titles with respect to the processing that they required.

Further, it is necessary to identify which costs would be borne by what part of the existing CUL budgetary structure. Also, the cost of procuring an electronic journal is very different if one mounts it locally and archives it rather than just provide access to it at some other site.

The Task Force recommends that the Library establish a short term pilot project to:

- identify costs given a variety of scenarios and recommend appropriate

modifications for the budgeting and accounting of those costs;

•determine appropriate indexing levels and access criteria for to files of electronic journals;

•begin the work of establishing connections with other institutions for the purpose of developing standards for indexing, archiving and maintaining "site of record" agreements for electronic journals.

3. Copyright

Electronic journals are under copyright. Some journals include copyright notices but they don't have to in order to be protected. In a posting to Humanist (Vol. 6:676, 4/28/93) which dealt with gophers and copyright, Ann Okerson said: "... people who place partial files, or any kind of copyrighted files, without permission, on computer sites, seem (to me) to have violated both common courtesy and the law."

For the Library to have to ask for permission from each publisher of a journal that it wanted to select would be costly and impractical. Having to do this would argue for mounting locally as few such resources available elsewhere as possible. This is too complex an issue for the Task Force to even envision practical solutions. So the Task Force recommends that two interim steps be taken.

The first is to assign a staff member to monitor developments on behalf of the Library and keep it informed. None of us is doing this right now. We acquire some information from the various lists that we monitor and publications that we read, but we lack a comprehensive view of the problem.

The second recommendation is that, until the broader issues are resolved, or at least clearer, the process of securing permission to acquire and mount an electronic journal locally will be carried out by the acquisitions staff at the appropriate processing center. The alternative would be to have selectors do it, but the Library would lose the benefit gained from having one person become really familiar with a process which will undoubtedly include many variations.

IV. CONCLUSION

The Task Force believes that it is both possible and desirable for the Library

to provide the same kind of leadership in the area of electronic journals that it has in the Digital Library and TULIP Projects. Although the access issues are very similar for all of these projects, each provides different challenges for the Library. The electronic journal is yet in its infancy, but its potential for revolutionizing the transmission of scholarly information makes it a fertile area for libraries with a vision.

Task Force on Electronic Journals
Final Report, Appendix A: Sample OPAC Screen

Search Request: T=BRYN MAWR CLASSICAL (CORNELL LIBRARY)
SERIAL - Record 2 of 2 Entries Found Brief View

---------- L340

TITLE: Bryn Mawr classical review.

PUBLISHED: Bryn Mawr, PA : Thomas Library, Bryn Mawr College, 1990-
Began in 1990.

ELECTRONIC ACCESS: charlie.mannlib.cornell.edu 128.253.87.250 70 Access via Gopher or Telnet

ELECTRONIC ACCESS: library.cit.cornell.edu 128.253.51.20 210 Access via WAIS or Telnet

---

LOCATION:	CALL NUMBER:	STATUS:
Olin Library Oversize	PA1 .B91	Enter HOL 1 for holdings
CUINFO	1055-0143	Enter HOL 2 for holdings
Server; Charlie (Cornell Network)	PA1 .B91	Enter HOL 3 for holdings
Server; Library (Cornell Network)	PA1 .B91	Enter HOL 4 for holdings

---------- Location 1 ----------

LOCATION: Olin Library Oversize
CALL NUMBER: PA1 .B91
STATUS: Check Shelf

CURRENT ISSUES: v.3:no.1-4 (1992:Feb.-Sept.)
LIBRARY HAS: v.2 (1991)

---------- Location 2 ----------

LOCATION: CUINFO
CALL NUMBER: 1055-0143
OTHER INFO: For signon info, type EXPLAIN SVR or ask Reference Desk

CURRENT ISSUES: 3.5.1-3.5.3 (1992:Nov.5)

---------- Location 3 ----------
LOCATION: Server; Charlie (Cornell Network)
CALL NUMBER: PA1 .B91
OTHER INFO: For signon info, type EXPLAIN SVR or ask Reference Desk

CURRENT ISSUES: 3.5.1-3.5.3 (1992:Nov.5)

---------- Location 4 ----------
LOCATION: Server; Library (Cornell Network)
CALL NUMBER: PA1 .B91
OTHER INFO: For signon info, type EXPLAIN SVR or ask Reference Desk

CURRENT ISSUES: 3.5.1-3.5.3 (1992:Nov.5)

Task Force on Electronic Journals
Final Report, Appendix A: Explain Screens

(CORNELL LIBRARY)

---------- L356

EXPLAIN SERVER

As part of an experiment, Cornell University Library is mounting a few electronic journals available via the campus network. In the Online Catalog the locations of these journals are listed as CUINFO or Server.

For information about connecting to CUINFO or the servers listed below, type the letter F followed by a space and the number indicated, then press <ENTER>. For example, F (spacebar) 1 <ENTER> will display information on CUINFO.

CUINFO	F (spacebar) 1
Server: Charlie (Cornell Network)	F (spacebar) 2
Server: Library (Cornell Network)	F (spacebar) 3

Type EXP SVR <ENTER> to return to this screen.

---------- + Page 1 of 4 ----------

STArt over <F8> FORward page
OTHer options

NEXT COMMAND:

(CORNELL LIBRARY)

---------- L356

CUINFO

CUINFO is an online guide to information and services at Cornell.

Public CUINFO terminals are located in most campus libraries as well as other campus locations: Annabel Taylor (CURW office), Day Hall Lobby, Gannett Health Center, Malott Hall, Noyes Center (West Campus Union), and Sage Graduate Center.

CUINFO may also be accessed from your home or office. For more information, contact the CIT HelpDesk at 255-8990 (8 a.m. to 6 p.m. weekdays).

To see a particular electronic journal, type its call number at the CUINFO introductory screen.

---------- + Page 2 of 4 ----------

STArt over <F8> FORward page
OTHer options <F7> BACk page

NEXT COMMAND:

(CORNELL LIBRARY)

---------- L356

Server:Charlie (Cornell Network)

Titles in the online catalog with a location of Server: Charlie (Cornell Network) can be accessed using a program called Gopher, a menu-based information retrieval and network navigation tool for microcomputers. It is distributed as part of Bear Access. If you do not have Gopher, you can run it directly on Charlie by using telnet (such as Comet or Cornell Telnet). If you have Gopher, use it to access Charlie with the name of number and port given below. Otherwise, run telnet (using the name or number below) and log in as gopher (all lower case letters).

Name: charlie.mannlib.cornell.edu Number: 128.253.87.250 Port: 70

For information about obtaining or using Gopher or telnet, contact the CIT Service HelpDesk at 255-8990.

---------- - Page 3 of 4 ----------

STArt over <F8> FORward page

OTHer options <F7> BACk page

NEXT COMMAND:

(CORNELL LIBRARY)

---------- L356

Server: Library (Cornell Network)

Titles in the Online Catalog with a location of Server: Library (Cornell Network) can be accessed using a program called WAIS (Wide Area Information Servers). WAIS is a network-based information retrieval tool which can be run on microcomputers and provides full-text searching capability. If you do not have WAIS for your microcomputer, you can run it directly on Server: Library by using telnet (such as Comet or Cornell Telnet).
If you have WAIS, use it with the name or number and port given below.
If not, run telnet (same name or number) and log in as wais (all lower case).

Name: library.cit.cornell.edu Number: 128.253.51.20 Port: 210

For more information about obtaining or using WAIS or telnet, contact the CIT Service HelpDesk at 255-8990.

---------- + Page 4 of 4 ----------

STArt over <F7> BACk page
OTHer options

NEXT COMMAND:

CORNELL UNIVERSITY LIBRARY
ELECTRONIC JOURNALS TASK FORCE

Final report, Appendix B

Accessing Information in Electronic Journals: Proposal for an Experiment

Introduction

Scholarly information already exists in a variety of electronic journals. How to make this information available to Cornell users and the role of the Library in this process are the subjects of this experiment.

Whatever the exact configuration of the information delivery system in a few years, it is likely to involve a variety of channels and methods. Some journals will be available in a variety of formats here at Cornell while others will be available only by accessing them through the Internet.

By creating a set of experimental conditions aimed at addressing a future with much variation and flexibility, the Task Force hopes to learn enough about what works here to make recommendations to the Library Administration pursuant to its charge as
issued by Ross Atkinson in his memorandum of 3 March 1992.

Specific goals

1. To identify delivery mechanisms optimal for Cornell users.
2. To develop links at the operational level between Library and CIT staff who need to learn to work together given that future technologies will require closer relationships between the units.
3. To identify policy issues which must be addressed by the Library Administration either alone or in concert with CIT.
4. To determine the human and machine resources needed to support access, and file maintenance of electronic journals.

Methodology

A set of five electronic journals from a list developed by CU selectors will be acquired and mounted on a variety of platforms at Cornell for the duration of the experiment. These platforms are: a server in Mann Library, another in the Library Technology Department, a Gopher server at CIT, and CUINFO, the University's campus-wide access service. The full texts of these journals will be made available, and access to them will be provided through existing searching capabilities.

In addition, two journals not at Cornell will be identified and access to them

provided through the above platforms.

Records in the On-line Catalog will provide starting points for the experiments. The journals will be cataloged as if they were part of the Library collection. Necessary messages to guide users from the records to the journals will be developed and tested. Holdings information for the journals mounted at Cornell will be maintained, though those accessed remotely will of necessity lack detailed holdings information.

The actual testing will be done in three phases:

Phase 1 will involve members of the Task Force only. They will do the initial testing of the various platforms, messages, and modify procedures and devise additional tests as dictated by their experience.

Phase 2 will involve up to ten volunteers from public services departments. Again modifications suggested in this phase will be implemented.

Phase 3 will involve up to 25 selected volunteer library users. They will be asked to fill out a questionnaire to record their experiences in a variety of testing conditions and to submit to interviews with members of the Task Force to clarify, or expand on, their answers.

While some of the testing involving records in the On-line Catalog may be done in the test system, at some point the tests must involve as close to real conditions as possible. Therefore, it will be necessary to test using records in the production file. So as to minimize unwanted confusion on the part of staff and users not involved in the experiments, the display of those records will be suppressed from the On-Line Catalog except at such times that testing is going on. Prior to the test, reference departments will receive a list of the test records as well as testing schedules.

Timetable
The experiment will start as soon as is practicable and will be completed by March 31, 1993. At that time, any records added to the production files as a result of this experiment will be deleted unless, by that time, the Senior Staff has decided on a policy for handling electronic journals and these records meet the conditions set forth in that policy. Similarly, records that were modified only will be edited to appear as they did before the experiment. Such NOTIS locs. as were created will be removed from the locations table or de-activated, as appropriate.

cmb, 9/28/92
rev., dih, 10/5/92

Task Force on Electronic Journals
Final Report, Appendix C:
Assessment of E-Journals by Librarian Volunteers

The Electronic Journal Task Force asked ten volunteers from CUL to look at various aspects of the electronic journals that have been mounted on servers at Cornell as part of our pilot project. The journals: Bryn Mawr Classical Review, CHIP News, Humanist, Psycoloquy, and Postmodern Culture were mounted on a WAIS (Wide Area Information Service) server in the Library Technology Office, and a Gopher server at Mann Library. Although CUINFO was planned as a third server, it was never fully implemented. Each of the journals was also cataloged and given locations in the online catalog with explain screens for each server.

The questions and responses received from the volunteers follow:

1. **QUESTION**: Look at each of the journals in the online catalog. Evaluate the records and explain screens. Do they provide enough information, not enough? Are they clear?

ANSWERS: the volunteers thought the message check shelf and a call number on the holdings screen in NOTIS was confusing. One also suggested that sign-on information and addresses be on the holdings screen rather than on the explain screen. They found the explain severs screens clear, although it was suggested that the difference between Gopher and WAIS be explained in more detail. The CUINFO screen was confusing.

COMMITTEE COMMENT: Some of the problems with the holdings screen messages are inherent in the NOTIS system, and, at least for the moment, are not within our power to change. The problems with CUINFO were related to the fact that it was not really implemented as one of the choices during the experiment, because the journals had not been mounted.

2. **QUESTION**: Try to get to each of the servers from your office computer. Describe any hardware or software problems you experience.

ANSWERS: The Macintosh users had no problem getting to any of the servers. They were all using BEAR ACCESS. One IBM user had problems using TN and Clarkson TN, and could not get BEAR ACCESS to work. Everyone preferred

University of Nebraska-Lincoln

ELECTRONIC JOURNALS WORKING GROUP REPORT

The electronic journal has many attractive features. When stored on a multiuser computer more than one user can read a single issue at a time. It is transmitted electronically so there are no delays in mail delivery and, unlike printed formats, may allow readers to interact with authors. E-journals, however, are a relatively new addition to the system of scholarly communication, therefore defining an e-journal, identifying its characteristics, and determining how it will be cataloged, stored, and retrieved are still evolving. The definition of electronic journals is not clear. A electronic journal can mean anything from a journal that imitates a printed journal with recognized editor(s) and/or referees, and volume and page numbering, to an alternative newsgroup with no control over contributions. This raises many philosophical questions for the University community.

Historical Information

The University Libraries are responsible for collecting and maintaining access to journals for the University of Nebraska-Lincoln campus that meet the tripartite mission of teaching, research and service. For the most part, when making collection development decisions the subject matter of the content is of primary importance. A decision to acquire a book, journal, or other source of information is made without regard to the format for the material. As machine readable journals became available they were integrated into the libraries collections. Minor changes were made to existing collection development policies to accommodate format differences.

These modifications reflect historical changes brought about by technology. With electronic materials the emphasis is not on housing the material as it is with printed information but on access. Although the information can be housed on-site as is the case with CD-ROM, the existence of the network makes the location less relevant. Likewise, it may be more valuable to access part of a resource as in the case of table of contents because the whole document can be obtained later using electronic transmission services. Access can be provided through a variety of means, either purchased as a subscription, paid in its entirety, charged by the number of simultaneous users, or charged on a use basis. Similar information to commercially produced publications is becoming available on the Internet (some free, some for pay). Part of the mission of the libraries is to sort through the variety of offerings and make informed selections on what will best support the teaching, research and service mission of the University.

Report

The Campus Wide Information System will provide access to a variety of decentralized information sources provided by individuals and departments throughout UNL. In the future, technologies will make it easier for more information to be produced and accessed through the Campus Wide Information System. If the Campus Wide Information System is to grow in a manner that will be monetarily manageable, responsive to changing research needs, and support the overall mission of the University it will be important for

UNL to be selective in identifying sources for inclusion and on-going support. The purpose of this document is threefold:

1) to clarify the role of the libraries in making electronic e-journals accessible on campus;

2) to provide a coherent policy for making decisions about selection and on-going support of the increasing number and variety of electronic journals for the Campus Wide Information System (CWIS) ;

3) develop guidelines and procedures for adding electronic journals to the Campus Wide Information System (CWIS).

E-JOURNAL DEFINITION:

A full text electronic publication, which may include images, and is intended to be published indefinitely. Resources such as LISTSERV lists, discussion lists, INTERNET interest groups, USENET newsgroups, and bulletin board conferences (even those that are moderated or have digested forms) whose primary purpose is simply the conversational exchange of ideas among users are excluded from the definition of e-journal with the exception of those that have an ISSN number.

RECOMMENDATIONS:

Selection

All titles proposed for inclusion on the Campus Wide Information System should be directed to the appropriate liaison librarians to determine whether it would be more appropriate for the libraries or the non-library unit to manage the "subscription".

Libraries:

Responsibility for selection of e-journals for the Campus Wide Information System is the responsibility of the University Libraries using existing collection development guidelines and procedures.

Non-Library Units:

When the Libraries are unable to support the request, the unit may take the request forward to the appropriate CWIS governing body. If approval is granted, the non-library unit assumes all responsibility for managing the journal including the following:

1. E-journals selected by other units cannot be added to the Campus Wide Information System without approval from the Senate Committee on Computational Activity.

2. Units selecting e-journals assume all responsibility for negotiating and enforcing license\agreements.

A. Accepted by libraries

1) Using collection development policy, liaison librarian reviews the title, decides to order, and completes the normal ordering process.

B. Not accepted by libraries

1) Using collection development policy, liaison librarian reviews the title, decides not to order, and returns the form to the requester

2) Requester submits form to CWIS governing body

3) Governing body accepts the recommendation, works with the requester to make the product available, and upon availability submits copy of the form to the libraries

2. After acceptance by the libraries or by the CWIS governing body, the libraries catalogs the item and enters the record into IRIS (procedures outlined below are followed)

[Library Procedures which must be Developed]

*1. Subscription procedure: develop e-mail address; develop procedures for receiving/transferring files (development will require help from ASO)

*2. Ordering procedures: for current issues and for backfile issues

*3. Procedures for recording the issues received and for maintaining records

*4. Cataloging procedures

*5. De-selection/withdrawal procedures

[these procedures must be developed for e-journals that are delivered through the following means: (1) automatic delivery; (2) notification of availability with the need to request articles or issues via a listserv command; (3) notification of availability with the need to retrieve files via ftp; (4) notification of availability with the need to retrieve files via a choice of either a listserv command or ftp.]

3) In cases where there are limitations to CWIS capacity, priority should be given to providing access to e-journals selected by the libraries.

4) All e-journals selected for inclusion on the CWIS will be cataloged and included on IRIS (on-line public access catalog).

Storage:

Libraries:

1)A retention decision will be made when the journal is selected using collection development guidelines.

2) The libraries will assume responsibility for providing appropriate on-line storage or will contract with CRC for facilities.

3) Length of time an e-journal is stored on-line will be determined using collection development guidelines.

4) When items are moved to an off-line product the format selected shall not inhibit accesss to the material.

Non-library Units:

1) A retention recommendation will be made to the Senate Computational Services Committee at the time of the initial request to include the e-journal on the CWIS.

2) The unit will assume responsibility for providing appropriate on-line storage or will contract with CRC for facilities.

3) When items are moved to an offline product, the unit will be responsible for making arrangements for continued access to the item.

Access:

1) All e-journals selected for inclusion on the CWIS will be cataloged.

2) CWIS administration will consult with the Libraries before placing non-library selected E-Journals in the same menu as Library Selected E-Journals.

3)CWIS administration will work with the e-journal manager to insure protection of license agreements.

OUTLINE OF E-JOURNAL PROCESSES
Preliminary Recommendations

The following is a very general outline of the process envisioned for ordering, processing, and accessing e-journals. Items with an asterisk beside them are specific processes that must be written when the initial report of the Electronic Journal Working Group has been accepted.

Steps Involved in Acquiring an E-Journal

1. Recommend acquiring an e-journal by completing a form and submitting it to the appropriate liaison librarian.
   *(Form must be developed and should be a multi-part form)

ELECTRONIC JOURNALS IMPLEMENTATION PLAN

University Libraries
The University of Tennessee, Knoxville

May 1993

Electronic Journals Task Force
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ELECTRONIC JOURNALS IMPLEMENTATION PLAN SUMMARY

Action	Timetable	Responsible
Select Titles	By July 1, 1993	Selectors Coll Devel CD Matrix
Acquire Titles	When the first 5 journals are chosen	Acquisitions & Processing
Catalog Titles	When first record is received from Acquisitions	Cataloging
Develop Access Mechanisms	In progress; prototype to be in place before user access begins	Networked Svcs Systems Reference Svcs
Train Staff	As soon as first e-journal available in OLIS	Networked Svcs Systems Reference Svcs Human Res
Preview E-Journals System Internally	Concurrent with staff training	Systems Networked Svcs Reference Svcs
Continue Installing Client Software	As requested	Systems
Announce E-Journals Availability to Public	When access mechanisms and initial staff training done	User Ed/P R Reference Svcs Networked Svcs
Orient and Instruct Users	Concurrent with client software installation	Reference Svcs Networked Svcs
Archive E-Journals	Begin planning mid-1994	Collection Dev Preserv Matrix Systems
Evaluate Progress and Contine E-Journals Development	Ongoing	Teams & Matrix Groups

ELECTRONIC JOURNALS IMPLEMENTATION PLAN

As electronic journals proliferate, libraries must address issues related to selection, acquisition, cataloging, access, and delivery. A recent report by Marlene Manoff et al[1] from the MIT Libraries cited several reasons for incorporating electronic journals into the library's holdings despite the infancy of the technology. Considering the fluid nature of electronic information, librarians have an opportunity to shape the future for electronic journals in the scholarly environment. Traditional methods for handling the acquisition and distribution of serials may need to be revised as electronic capabilities emerge. Experimentation with e-journals in these early stages will foster the testing of new procedures, as well as access to some information that is only available in electronic format.

In February 1993 the Electronic Journals Task Force was formed to study current options for providing access to e-journals and make recommendations to the Library Management Group for implementation. The Task Force reviewed implementation processes in progress at other libraries, and formulated several questions to be resolved in functional areas involved with e-journals. Task Force members responsible for the various functions led discussions that explored options for

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[1]. Marlene Manoff et al, "Report of the Electronic Journals Task Force MIT Libraries," Serials Review (Spring and Summer 1992): 113-129.

management and delivery. The University Libraries' participation in the Elsevier TULIP project (in which some forty-two materials science journals are to be delivered via the Internet) provided some local experience for considering many of the questions.

A number of working assumptions and primary issues emerged from Task Force discussions, defining a context for implementing e-journals access and delivery at the University Libraries in the near future:

*Selection processes in the electronic environment will be based on the same criteria as those in the print milieu, although different types of instructions will need to be provided up front--such as address for electronic delivery of issues, archiving format, terms, etc.

*In managing and delivering journals electronically, the library will explore new acquisitions procedures that may streamline those now used for print journals.

*E-journals may require a new model for the receipt of issues (or articles). While the library must continue to ascertain that the item or service purchased is received, new license and subscription arrangements may provide access on demand, articles delivered individually, and externally-based archives.

*Increasingly libraries will be delivering access to individual articles, rather than to a collection of articles in a print journal. Improved citation access to full text of electronic journals, such as that offered by tables of contents services, (CARL, Current Contents, FirstSearch) is essential.

*Cataloging for e-journals should provide at least the level of bibliographic access now available for print serials.

*Cataloging will be provided for those titles to which we maintain official access arrangements. Records for e-journals will be available in the online catalog.

*E-journals permit the reformatting of data received into a variety of formats convenient for the user.

*Format, access and delivery will be fluid for some time, and changes in implementation processes should be expected.

*Initial public access to e-journal tables of contents and full text will be through OLIS.

The Task Force Implementation Plan is guided by these assumptions as it seeks resolution to several issues. While the elements of the plan consider the longer term, the Task Force devised a plan for the immediate future that can be implemented this year with relatively low cost on an experimental basis. Given the transformational nature of electronic publishing, we expect the procedures implemented initially to be continually reviewed and revised. The Task Force recommends that approximately 10 e-journal titles be selected for testing the functions involved, with the results of the experience to inform future policy and procedures for making e-journals accessible to users. We recommend that the following steps be taken.

SELECT TITLES

Primary Responsibility: Selectors, Collection Development, Collection Development Matrix

Timetable: By July 1, 1993

A group of approximately 10 electronic journals will be selected for acquisition by the Libraries. Selectors will identify 3-5 electronic journal titles in each of the major subject areas (humanities, sciences, social sciences), on which decisions will be made by the Collection Development Matrix Group. Appended is a list of e-journals selection sources.

Electronic journal requests will be submitted on the Serial Request Form. The existing Serial Request Form will be revised by Collection Development to include spaces for indicating access/storage costs, and equipment needed, as well as choices for cataloging and archiving channels. Selection criteria included on the Serial Request Form (support of instructional, research and service programs; enhancement of total collection; demand; accessibility; indexing; etc.) should be followed, with additional consideration given to access/storage costs and availability of equipment. Selectors may consult Networked Services and Systems staff to approximate costs for storage and equipment. Licensing costs may take the place of the former subscription cost.

The selection process will include decisions about handling, access, and archiving mechanisms. The Collection Development Matrix Group will address questions such as: 1) Which library computer will receive the subscription; 2) Is minimal level cataloging, rather than full MARC cataloging, appropriate in some cases; 3) Will data rearrangement be required to make the title more accessible to users; and 4) In what format will backfiles be made available.

ACQUIRE TITLES

Primary Responsibility: Acquisitions & Processing

Timetable: As soon as the first five journals have been selected

Acquisitions initiates the process by which the library makes a commitment to systematically acquire and make available

an e-journal title. Upon receipt of requests approved by Collection Development, Acquisitions will verify accuracy of subscription information and place the order. Licensing and subscription practices may vary by publisher. Acquisitions is responsible for confirming receipt, and may use non-traditional check in practices. Electronic journal text will be received at the computer address specified in the selection process, and Acquisitions & Processing will monitor the receipt of issues, claiming those that are not received. With the development and use of a computer program, options may exist for the Serials Unit to be notified by e-mail when a library computer receives an e-journal issue.

CATALOG TITLES

Primary Responsibility: Cataloging

Timetable: To begin with first record received from Acquisitions

The Library will generally catalog items that the collection development process approves for acquisition. Selectors may recommend that an item which is ephemeral or quickly changing (local guides, text files, etc.) not be cataloged. Collection Development, in consultation with library selectors, the Collection Development Matrix, and catalogers, is responsible for deciding when cataloging should be provided and if a level other than full MARC cataloging is appropriate.

Cataloging for electronic journals will be handled according to the practices for serials in other formats.

Normally, E-journals will receive full MARC cataloging and records will include summary holdings information. The MARC 245 field indicates that a journal title is a "computer file." Mode of access is described in the 500 field, and the 265 field lists the publisher and source of access, such as Internet address. Although article level information will not be shown in OLIS initially, such access along with fully searchable contents notes, analytics, etc. will be considered by Cataloging in the future.

Holdings data will appear in OLIS from the MARC 930 field, with the subfield delimiter "i" used to direct the user to an appropriate terminal or local access point. Procedures for linking holdings and check-in records will evolve as we gain more experience. Developmental work on the TULIP project is addressing a process for automatic check-in and holdings generation. As archiving decisions are made, summary holdings must reflect location and format (e.g. CD-ROM, computer tape, etc.) Holdings issues will become more complex in the future as publishers release individual articles rather than entire issues. Some publishers have already abandoned volume numbers and some are publishing "on demand." Links between journal full-text and holdings information will become increasingly important for user access.

DEVELOP ACCESS MECHANISMS

Primary Responsibility: Networked Services, Systems, Reference Services

Timetable: In progress; prototype must be in place before user access can begin

OLIS will be used for access to e-journals by listing journals to which the Libraries subscribe, and by pointing to journals available through the Internet. OLIS menus will provide the framework for future front-end development. Front-end programming such as that being done for the TULIP project can simplify and expedite user access to e-journals on external files by rearranging data to be easily read. User interface software will take into consideration the variety of platforms used on campus. Library staff will monitor interfaces being developed by other libraries to identify potential programs for use and adaptation.

Since there is yet no comprehensive indexing for electronic journals, users will need the capability to search by subject or keyword. Front-end development will facilitate WAIS (text) indexing, permitting access to a database from multiple computer platforms. A primary goal in the development of interfaces will be to help the user identify a known item quickly, browse tables of contents, view article text and graphics, and obtain the files or copies. Links should be provided among bibliographic indexing sources, table of contents services (e.g. CARL, Current Contents, FirstSearch) and the actual journal article.

The menu/interface will provide instructions (through the OLIS screen hierarchy) for acquiring desired citations and articles. Options will include printing, downloading, and

forwarding to an e-mail account. By the time public announcements about the availability of e-journals are made, the print capability will be available in the library. Networked Services, Systems and Reference Services will collaborate on developing access procedures that have easily interpreted screens and convenient downloading steps. Users with client software can directly download to their machine; otherwise files will be sent to remote sites for text downloading. As library staff develop methods for access to full text, instructions to users will appear in OLIS and in printed guides. Some journals, such as OCLC's Journal of Current Clinical Trials, may have their own software.

Distinctions may be made between journals that are delivered from internal files and those available externally. Journal files located internally may be reorganized (preferably according to a standard) to make access more convenient to the user. In consultation with Collection Development and the CD Matrix Group, Reference and Networked Services staff will identify titles where rearrangement of the files could improve access to the contents. WAIS indexing will also be implemented.

Many licenses and subscriptions in the electronic environment will require that access to journals be restricted to primary clientele, for example, holders of UTK ID cards, particularly in cases where the primary clientele will seek access from off campus. Consistent with the library's public

service mission, electronic journals will be made as broadly available as possible. Systems and Networked Services staff, in collaboration with UTCC, will develop or use local authorization procedures that meet the restrictions of commercial publishers.

Access will rely on a variety of platforms. Initially, e-journals mounted locally will reside on the NeXT. In the future other powerful workstations could be used as file servers, or files may be stored at UTCC and delivered over the campus network. Users in the library will have access to e-journals via workstations in Reference, Current Periodicals, Branch Libraries, and in any other location where workstations are placed. Access will also be provided through the UTCC Microlab and via any campus networked workstation.

TRAIN STAFF

Primary Responsibility: Networked Services, Systems, Reference Services, Human Resources

Timetable: Begin as soon as first e-journal is available via OLIS

Staff will receive training in steps to retrieve journal titles, issues, tables of contents and full text before the availability of e-journals is announced to the university community. Initial training, given by staff in Networked Services, Reference Services and Systems, will prepare those who work at public service areas to counsel users on access steps for known items, browsing and keyword searching in OLIS. Eventually, staff will learn to find e-journals via the

Internet using aids such as WAIS and Archie/Veronica. Training for access to e-journals will be incorporated into the Human Resources training program, the primary audience being staff who must use these skills in their work.

PREVIEW E-JOURNALS SYSTEM INTERNALLY

Primary Responsibility: Systems, Networked Services, Reference Services

Timetable: Approximately one month, concurrent with the inception of staff training

A prototype period for testing, refinement and training will prepare staff to use e-journals in a public setting before widespread announcements invite the public to make use of these new resources. Enhancements to the interface, as well as improvements in delivery procedures will continue during this time. Users will be involved through one-to-one demonstrations, and possibly in surveys, while staff experiment with using e-journals and techniques for conveying their use to the public.

In Systems, staff resources will be identified and assigned to manage internal files and to create/maintain journal indexes. The client/server approach will be taken for software and hardware. WAIS indexes will be updated and clients modified for optimal use. Hardware for needed storage space will be identified and acquired.

CONTINUE INSTALLING CLIENT SOFTWARE

Primary Responsibility: Systems

Timetable: As Requested

Library and UTCC staff will assist users who wish to install client software on their own workstations.

ANNOUNCE E-JOURNALS AVAILABILITY TO PUBLIC

Primary Responsibility: User Education/Public Relations, Reference Services, Networked Services

Timetable: Upon completion of access mechanisms and initial staff training

Channels of notifying the community about e-journals will include the following:

Beacon, Context, UTK Librarian, UTK Library News

Open House in Fall 1993

Commercial Television

Local Professional Associations

Online Announcements Through OLIS

Notify Deans and Directors

UTCC Newsletter

Mention in Library Tours

ORIENT AND INSTRUCT USERS

Primary Responsibility: Reference Services, Networked Services

Timetable: Beginning concurrent with client software installation

Users of e-journals will need some familiarity with personal computers, and the ability to use (or learn to use) a menu-driven interface. Help sources will include printed guides, personal assistance at the library public service counters, and help screens in OLIS. After a few months' experience in using e-journals, staff will develop online help screens, incorporating user response into design and content.

Library staff will provide instruction that encompasses individual demonstrations at library or user workstations, group classes, multimedia and computer based training. Instruction for accessing e-journals will be incorporated into presentations as librarians deem appropriate, and may include seminars conducted by library staff, perhaps as an element in a series devoted to electronic access to information sources. Librarians will meet with targeted groups such as new graduate students and faculty/graduate students in specific departments.

ARCHIVE E-JOURNALS

Primary Responsibility: Collection Development, Preservation Matrix Group, Systems

Timetable: Begin planning mid-1994

Although archival considerations are part of the selection process, many decisions about archiving cannot be made until a backfile of e-journals exists. Selectors and faculty, in consultation with Collection Development, the Preservation Matrix and Systems, will make decisions regarding the timing and format for archiving e-journals. In general, if the library officially acquires a title, access will be provided to all issues/articles received. However, archiving decisions must be made on a case-by-case basis with consideration given to many of the criteria now used for print media. Some additional criteria for archiving electronic media include file size, availability of alternative formats, availability of external files as backup, hardware required, maintenance of play-back equipment, refreshing of data, and developments on

the national and regional scenes. Back files may not be available online, but provided in formats such as CD-ROM, diskette, microform, and in storage media yet to be developed.

Systems will be responsible for maintaining archival files. For files residing internally, needs for storage space will be identified. Staff resources for maintaining a regular backup schedule will be evaluated. Systems will establish and follow a schedule for refreshing backup files.

EVALUATE PROGRESS AND CONTINUE E-JOURNALS DEVELOPMENT

Primary Responsibility: All Teams: Matrix Groups for Collection Development, Technical Services, Preservation

Timetable: Ongoing

Evaluation of e-journals implementation will be entwined with continuing refinements to access procedures and data management. The test group of electronic journals will generate a ripple of opportunities for internal changes in procedures, consultation across functional lines, and collective deliberation about the foundations of providing service in the electronic library. The Task Force recommends that during FY 1993-94 issues related to electronic journals be resolved within and among Libraries Teams and Matrix Groups.

Collection Development decisions will include choices about access mechanisms, as well as acquisition in the traditional sense of ownership. The Collection Development Team and CD Matrix Group, along with selectors and representatives from Reference Services, Networked Services,

and Systems have key responsibilities for initiating discussions about service issues and recommending policies related to e-journals. For example, Collection Development should sponsor in-depth discussions relating to broad access issues in the electronic environment: 1) How should decisions be made regarding which journals will be pointed to via OLIS; and 2) Should some level of cataloging be provided for e-journals pointed to by OLIS, but not officially acquired by the Libraries.

Publisher/vendor license innovations may be raised by Acquisitions for direction or approval from the CD Matrix Group. Some topics, such as cataloging materials held externally or alternatives to cataloging, may become agenda items for Library Management Group or Library Faculty discussions. Other issues may be resolved through the Technical Services Matrix Group or by representatives of appropriate functions working together. For example, Acquisitions and Cataloging may use the Matrix Group as a forum for discussing check-in alternatives. Cataloging will be challenged to relay holdings information to the public, and may begin library-wide discussion by having options considered by the Technical Services Matrix Group.

The Preservation Matrix Group will have a role, also, in consultation with the Collection Development Matrix Group, to determine e-journals archiving plans. Archiving will become a

major issue as library staff consider ease of access, storage media available and relative costs of the options.

Reference Services, and staff from Library Branches, Networked Services and Systems will combine evaluation with development in a cycle of improvements that must be communicated to users. Public information and instruction will be ongoing as library staff teach users about new options and streamlined access procedures. As staff observe the interaction of the public with e-journals, they will have ideas for improving instruction, particularly aids focused on the independent user. Work on delivery options will continue. Staff training, also, will be an ongoing factor in the provision of e-journals service.

COST ESTIMATES AND BUDGET IMPLICATIONS

This electronic journals implementation plan is intended to provide the Libraries with preliminary experience in the selection, management and delivery of an emerging information medium. Overall costs to execute the plan described here are minimal. Of the journal titles selected, many will have no subscription cost or be priced under $100 per year. As workstations replace existing Geac terminals, equipment will be available throughout the library for user access. Existing staff can fulfill the tasks described to make the initial e-journals available. Depending upon the titles selected, additional computer disk space may be required: a 1.3 gigabyte drive costs approximately $1,700, and would likely be adequate

for at least the initial titles selected. Some savings in binding and related processing might be realized, but until archiving options are explored, the fiscal tradeoffs are unknown.

New funding will be needed to support menu/interface design. Approximately $2,000 would purchase 250 hours of programmer assistance to create user interfaces; this amount is currently being dedicated to the TULIP project for programming, and appears to be adequate for providing basic data parsing and automatic handling of incoming data. While considerable time and resources could be spent on design of front-end user aids, the use of the gopher structure provides basic access. If journals selected are delivered in a user-friendly format, little reorganization of data may be necessary; if a title such as OCLC's Current Clinical Trials is selected, a system to incorporate its dedicated software into OLIS could be time-consuming. Approximately $5,000 should be allocated to support implementation of e-journals access during FY 93/94.

As with the procedural and service dimensions of providing access to e-journals, cost factors will become more apparent as we experiment with the initial group of titles. Future requests for funding will be incorporated into Team and Matrix Group annual budget requests.

APPENDIX A: GLOSSARY

Archie/Veronica: Systems for locating files that are publicly available by anonymous FTP. They search menu items and titles. Veronica only works on machines that have been "registered."

Client/Server: The client is a software application that extracts a service from the server; the server is software that allows a computer to offer service to another computer. Ed Krol suggests thinking of a telephone as a client and a telephone company as the server.

FTP: A high-speed method for transferring files over the Internet

Interface/Front End: Screens which the user sees to reach the desired information source

OLIS/Gopher: UTK's Online Library Information System uses the menu-driven Gopher software to offer a variety of choices (online catalog, library guides, Internet, etc.) to users

TULIP: A research project among Elsevier Science Publishers and ten research libraries across the country. Table of contents files and bitmapped page image files in TIFF format of 42 materials science journals are to be delivered to the participants via Internet.

WAIS: Wide Area Information System, a text searching systems that allows the user to find and access resources on the network regardless of where they reside

WWW: World Wide Web, a hypertext searching system that moves from one document to another on the network via links (similar to cross references

APPENDIX B: ELECTRONIC JOURNAL SELECTION TOOLS

(To be provided)

APPENDIX C: SERIAL REQUEST FORM

SERIAL REQUEST FORM

University Libraries
University of Tennessee/Knoxville

ATTACH SAMPLE COPY OR DESCRIPTIVE INFORMATION IF AVAILABLE.

Author/Title

Publisher

Address

Request order for:

- ☐ Subscription to begin with current volume
- ☐ Backfile: Microform OR Paper (PLEASE CIRCLE)
- ☐ Standing order of multi-volume set or continuation

Price

Desired location:

- ☐ Main
- ☐ AgVetMed
- ☐ Music

Need for the title:

Serial titles suggested for addition will be reviewed on the basis of the Selection Criteria outlined on the verso of this form. The requestor should comment on the asterisked (*) criteria and may respond to other criteria as appropriate. Attach additional pages as necessary for your comments.

Requested by | Department | Date

Signature of Departmental Library Representative

FOR LIBRARY USE

Publ. date, v. 1: ..... Indexed: .....

Backfile available: .....

microform $..... from: ....

paper $..... from: ..... Reviews: .....

Current microform subscription: .....

$..... from: ....

Subscription agent: .....

RECOMMENDED ACTION: .....

APPROVED ACTION: ..... Date: .....

Return to Collection Development, 552 Hodges Library (phone: 974-4306) Lib. 173 - 11/88

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SERIAL SELECTION CRITERIA

The following criteria are listed, insofar as is practicable, in priority order. Not all criteria will apply to all titles; however, it should be noted that they do apply to gifts as well as to purchased materials. Duplication of serial titles already received on campus will be avoided.

* 1. SUPPORT OF INSTRUCTIONAL, RESEARCH AND SERVICE PROGRAMS AND ACTIVITIES.
Factors to consider are: quality and reputation of the program, enrollment, level and number of courses offered, number of faculty or graduate students actively engaged in research in the field, interdisciplinary nature of program and serial. Selection of serials of a general or popular nature may be made on other bases.

2. ENHANCEMENT OF TOTAL COLLECTION.
Consider deficiencies in the library collection and whether the title makes a new contribution to its subject field.

* 3. DEMAND.
Consider probable intensity of use: large user population or emphasis on periodical literature in the discipline.

4. ACCESSIBILITY.
Consider whether the title is available on campus; in the city, state, region, or country; or through the Center for Research Libraries.

5. INDEXING.
Consider whether the title is included in abstracts and indexes in the Library system.

* 6. QUALITY.
Factors to consider are: reputation of editors, contributors, publishers or sponsors. Reviews and faculty opinion will be helpful.

7. LANGUAGE OF PUBLICATION.
Where English is designated in the *Descriptive Guide to Development of the Collections* as the primary language of collection, only the most important serials in other languages may be acquired.

8. COST.
Cost includes not only the purchase price of the serial but also the ongoing expenses involved in record keeping, binding, etc. Cost should be considered in relation to other selection criteria.

Northwestern University

Committee on Institutional Cooperation

Task Force on the CIC Electronic Collection

Report to the CIC Library Directors

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- October 1, 1993 -

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EXECUTIVE SUMMARY

The Task Force on the CIC Electronic Collection was charged by CIC Library Directors to explore the management and use of shared electronic resources and to consider relevant issues for the CIC libraries. The Task Force was specifically asked for recommendations on collection policy, organization, bibliographic control, and access policies for electronic journals and full-text electronic collections.

The Task Force has defined the CIC Electronic Collection as all electronic resources within any CIC library that are accessible over the Internet by students and faculty at CIC universities. The Task Force has limited its attention to collections where centralized storage and shared access are desirable.

A. Recommendations for immediate implementation: Electronic journals

CICNet staff have accumulated on a server more than 600 freely distributed electronic journals across a wide range of subjects and treatment levels. To manage this collection, the Task Force recommends:

1. that a complete, authoritative, and permanent collection of electronic journals shared by CIC libraries be selected from those on the server for active management, cataloging and ongoing maintenance. The collection should be identified as the CIC Libraries Electronic Journal Collection (CICL EJC).

2. that the CICL EJC, and the CICNet server be governed by a broad collecting policy endorsed by the CIC Library Directors.

3. that the CICL EJC be managed on an ongoing basis by a small CIC committee reporting to the CIC Collection Development Officers.

4. that bibliographic records be created for each title selected for the CICL EJC and entered into national databases and each CIC library's OPAC.

5. that the collection be maintained in text format by CICNet with Gopher as the access tool.

B. Recommendations for intermediate development: Full-text collections

Management of shared full text resources will require agreements among CIC libraries about sophisticated access and text manipulation software, as well as shared standards for tagging texts. The complexity of these projects calls for further work to determine their feasibility. Several CIC institutions are developing such expertise, and will soon be in a position to explore use of shared collections and build a common base of expertise through a pilot project. The Task Force recommends:

6. that the CIC Library Directors authorize the Task Force to convene librarians and computing staff members from CIC and CICNet institutions to review

available tools, explore possible pilot projects, and build a common vision of a shared collection.

The Task Force discussed several avenues of cooperation with CIC university presses. Several ideas were discussed, and offer possibilities for future cooperative activity. The Task Force recommends:

7. that the Task Force and CICNet, Inc. facilitate cooperative projects initiated by the CIC university presses.

C. Recommendations for long term exploration and development.

The Task Force has made considerable progress in fulling its charge with respect to shared collections stored centrally on CICNet. Its deliberations have just begun to touch on alternative modes of sharing electronic collections, and have revealed a number of issues which will require thought and deliberation. The Task Force recommends:

8. that its life be extended, either on a continuing or periodic basis, to explore, evaluate and make recommendations on ongoing issues, including

* monitoring the development of archival standards
* licensing fee based journals
* managing numeric data
* shared bibliographic databases in multiple formats
* management of government data
* sharing CD-ROM products
* providing common gateway services.

These issues will need periodic sifting to discover which are amenable to shared solutions. In particular, as imaging technology and experience with mixed image and text documents increases, options for shared use of collections promise large potential cost savings that should be explored.

BACKGROUND AND PLAN OF WORK

The CIC Library Directors identified the need for a forum to focus on the problems of developing electronic resources that can effectively be shared by CIC universities. The opportunities presented to CIC libraries by a shared network, combined with newly emerging access tools that make shared electronic resources easy to use were becoming clear. The CIC Collection Development Officers had initiated discussions with CICNet staff regarding the feasibility of archiving electronic journals on CICNet, and with the emergence of Gopher servers as a de facto standard of access, CICNet had taken the steps to build a significant collection. In independent but overlapping arenas, CIC library staff, as well as computing center staff from CIC universities, had begun to explore options for sharing full text electronic resources and bibliographic databases.

Recognizing the confluence of these events and trends, the CIC Library Directors created the Task Force on the CIC Electronic Collection in February 1993. Its membership represents CICNet and all the functional areas of libraries, and it was created to take a systematic look at how shared electronic resources could be managed and used, and to consider the issues inherent in the development of a cooperative and shared collection to support the mission of each CIC institution. The Task Force was charged to explore options for shared collections of electronic resources on CICNet and make recommendations regarding:

1. Collection and access policy for CIC collections of electronic journals.

2. Collection policy for full-text electronic collections for shared access.

3. Organization, bibliographic control, and access policies for these collections, and interim guidelines to be implemented for collections already started.

4. Management and funding of license agreements for shared data.

5. Workable structure for ongoing administration of CIC collection and access policies.

This was intended to be a broad and intense look at these issues, with a short deadline of October 1993. The group is composed of two members from the Collection Development Officers group; one each from the Public Services, Technical Services, Computing/Automation and Director groups, and one CICNet staff member.

This group has met four times in a seven-month period. The plan of work was designed to incorporate a broad sweep of the current issues and realistic near term possibilities for collective action for sharing electronic resources, and to provide for broad discussion of these issues among CIC library staff over a relatively short period of time. Minutes and agendas for these meetings have been widely circulated, with the goal of putting all the relevant issues and concerns on the table without regard to the possibility of resolution. The Task Force then sifted these issues and concerns into clusters based on the feasibility of immediate action, the technical preconditions for collective action, and the

existence or lack of existence of the expertise among CIC universities to manage a collective enterprise, particularly full texts.

The Task Force conducted a survey of CIC libraries regarding their current interest in electronic journals and other electronic collections. The survey revealed broad interest in developing a shared collection of electronic journals, and established that CIC libraries are prepared to provide access to such a collection on Gopher servers. It also helped identify additional issues for the Task Force's attention. The survey instrument and a summary of results is included as Appendix D.

This survey and the Task Force's deliberations revealed a broad possibility for defining the CIC Electronic Collection. Among CIC libraries are rapidly growing collections of electronic journals, bibliographic databases, numeric databases, and full text resources. Any of these can be commercial or non-commercial in origin. The Task Force has defined the CIC Electronic Collection as all electronic resources within any CIC library that are accessible over the Internet by students and faculty at CIC universities. The Task Force has limited its attention to collections where centralized storage and shared access are desirable. Other options for management of the CIC Electronic Collection include centralized management and distributed storage, partnerships by two or more individual libraries, or distributed management and storage with shared access. Exploration of these options will require more work by the Task Force or some other group.

We present recommendations based on what we know today about managing a centralized collection in this complex and rapidly changing environment. They are not intended to be equally definitive. The Task Force sees its role as pointing to those issues or projects where the opportunities are present for action, and pointing the way to discover solutions to emerging projects and issues where immediate solutions are not feasible. In the case of recommendations regarding the management of a shared collection of electronic journals, specific and concrete steps are needed and possible. In the case of shared full-text resources, additional work is needed by those staff members in the few CIC libraries and computing centers who are now actively managing such collections before we can form a realistic vision of how shared texts can be used. In the case of bit-mapped or digitized images, the Task Force recommends that no further joint action be considered until enough local sites have experience managing these formats that we can reasonably predict their impact in a shared environment of thirteen libraries and thirteen computing centers, or until a practical standard for accessing these collections is developed.

These recommendations are thus offered based on a snapshot of the current state of technology and readiness of library staffs to manage and use that technology in a shared environment. There are now areas like electronic journals collections where joint management of resources will extend our collective capacity beyond the reach of any individual library. As libraries develop pilot projects and new expertise, the possibilities for collective action will broaden, the Task Force recommends that it function as an ongoing forum to assess emerging opportunities for shared collections and take advantage of them.

The rapid development in these new information areas and the joint CIC and CICNet record of achievement provides a significant opportunity to maximize the benefits to CIC members as a group while minimizing costs to the individual libraries. While there are at

present some sources of external funding to support electronic collection development, they will not continue indefinitely. Additional financial resources will be needed in order to maintain or increase current levels of activity as the production and extension of electronic information expands.

PART 1

Recommendations on Electronic Journals

CICNet staff have assembled a collection of freely distributed electronic journals from around the world which now number more than 600 titles. In this document this resource is referred to as "the CICNet electronic journals server." This server is now accessed by users at the rate of six to eight times per minute, and it promises to provide both a means of current access and a shared permanent storage mechanism for CIC libraries. The Task Force recommends that journals be selected from those on the server for active management, including cataloging and ongoing maintenance, which will become the CIC Libraries Electronic Journal Collection. This Collection will have the following characteristics and resource requirements:

A. Collection policy.

The CIC Libraries Electronic Journal Collection, and the CICNet server as a whole should be governed by a broad collection policy, presented as Appendix A. The policy envisions a new kind of entity, a master database shared by all CIC libraries, broadly based to meet a variety of curricular and scholarly needs, with access by all CIC libraries the norm, rather than ownership by any one library. The collecting policy is not constricted by any one library, but broad enough to serve all. This policy statement should be endorsed by the CIC Library Directors.

B. Management of the Collection.

The CIC Libraries Electronic Journal Collection will be housed within the CICNet server. This Collection should be managed on an ongoing basis by a CIC committee formed under the auspices of and reporting to CIC Collection Development Officers. This committee should consist of three librarians from within CIC libraries with a mix of backgrounds and experience and an interest in and commitment to electronic journals. A draft charge is presented as Appendix B, along with recommended steps to form this group. The Committee will select titles for full treatment in the Collection, recommend priorities for future acquisition, and set priorities for cataloging and levels of access within the Collection. The Committee will work with CICNet staff to identify resources required to maintain the Collection, as well as strategies to live within resource limitations.

The Task Force recommends creation of this Collection in the belief that collective and cooperative efforts to provide access to electronic journals is sensible and cost effective. It does not intend to preclude the possibility that individual CIC Libraries acquire electronic journals as local needs dictate. Local efforts indeed may provide useful information on future additions or improvements to the CIC Libraries Electronic Journal Collection.

1. Among the first tasks of the Committee is an initial review of current holdings. A review of the existing CICNet electronic journals server must be done to separate journals of primary interest to the CIC Libraries Collection from other items in the server. The server at present contains over 600 titles and while many of these are of scholarly interest to the CIC libraries, others are not. A "first pass" should be made to identify the journals which merit enhanced access and active management.

2. Backfiles. The server contains many incomplete runs. The Committee will guide CICNet staff regarding priorities for completing the collections. Immediate priority should be given to providing complete and authoritative runs of each title in the CIC Libraries Collection.

3. Deselection. The Committee will be responsible for deciding which titles, if any, once incorporated into the CIC Libraries Collection, should be removed. The Task Force recommends that given the rapidly emerging nature of this format, no deselection should take place for at least five years to give the medium an opportunity to stabilize and its usefulness to develop.

4. Titles remaining in CICNet electronic journals server. CICNet may choose to keep the broader collection of electronic journals that are not chosen to become part of the CIC Libraries Collection. This, like a sample periodical file or a gift shelf in an acquisitions department, may be a useful resource for those attempting to identify electronic journal titles or to explore the full breadth and depth of the formative years of this new and evolving communication medium.

5. CICNet has approached library schools at Michigan and Illinois to develop library school student internships to support the management of this collection, among other tasks, and selected two interns. The CICNet proposal that forms the basis of these interns' work is presented as Appendix C. The Committee will set priorities and coordinate the work of the interns in relation to the Collection.

C. Cataloging and access.

To ensure campus user awareness of and access to the rich and varied electronic resources being archived, bibliographic records should be created for each title selected for the CIC Libraries Electronic Journal Collection. The Task Force has found that resources are available on a volunteer basis among CIC libraries to catalog at the rate of 200 titles per year. In addition, CIC libraries should be surveyed to identify titles which may have been cataloged by the individual libraries but which are not represented in the CICNet server. Titles so identified should be reviewed for addition.

These bibliographic records ideally should appear in OCLC (and RLIN) with CICNet identified as the "holding" institution. (This option is being explored in detail with OCLC.) Copies of the records should be added to each CIC library OPAC to assure ready patron access. They should also be incorporated as part of the introductory matter for each title in

the CIC Libraries Electronic Journal Collection. Each member library may choose to edit the records for the local system to meet specific patron access needs.

Cataloging records should include the following elements:

1. Full MARC tagged data, except that no classification will be assigned. Where official cataloging standards do not yet exist, cataloging should follow standard practice as reflected in existing records created by libraries already cataloging electronic journals. The ISSN should be incorporated in the record when known.

2. Special instructional notes that

   a. Describe the issuing entity,

   b. Provide a detailed description of how to subscribe to the title from the issuing entity if available,

   c. Provide detailed instructions on how to access the title in the CICNet collection.

3. No authority work will be required, but standard LC Subject Headings should be assigned to each title.

4. If a record already exists in OCLC, seek assistance from the original cataloging institution and OCLC to convert that record to a CICNet designated record.

5. Each record will contain the designator "electronic journal" and a unique character to enable retrieval as a group of records.

The University of Michigan Library has cataloged slightly over 100 titles. These records should be matched against the CICNet server. Where matches are found, the records should be edited to include the CICNet access note and the revised records should be made widely available as outlined above.

As the selection review progresses, each uncataloged title should be referred to a cooperating member library for full cataloging. A survey of CIC libraries was conducted to determine which libraries would be able to process titles on a contract cataloging basis and which libraries could process records on a contributed cataloging basis. Three of the seven respondents indicated that they could catalog between 50 and 100 titles per year on a contributed cataloging basis. One institution may be able to process up to 200 titles in a year. Given the anticipated rate of selection, it is projected that 200 titles would be recommended for cataloging in the next year. At this level, contributed, rather than contract cataloging is the preferred option. A mechanism needs to be established to provide core data to the designated cataloging libraries as titles are selected. The cataloging site will be responsible for ensuring that a copy of the completed record is received by CICNet for addition to the server file, as well as distributed to OCLC and the CIC libraries.

The cataloging library will not be expected to maintain the records which it produces for this project. However, as the CICNet staff, selectors, or member libraries note changes that affect the records, these changes should be reported to the Management Committee (see Appendix B) so that adjustments may be made to the records. The Committee will handle these requests as it handles requests for new cataloging.

CICNet will strive to maintain a complete file of each selected title. The Gopher listing for the CIC Libraries Electronic Journal Collection will be adjusted as each issue is received and added to the file (i.e., checked in). The Gopher listing of held issues will, therefore, provide detailed holdings information. No separate holdings or check-in records will be created.

Since CICNet is the only holding institution of the CIC Libraries Electronic Journal Collection, the records in the OCLC database will display on the proposed CICNet symbol. Libraries loading this record in local catalogs should not output the record to other files (state resource files or RLIN, for example) unless they are willing to take responsibility themselves to provide access to the CICNet collection for libraries receiving their records.

The Task Force made estimates of the cost of cataloging. Experience at the University of Michigan indicates that senior paraprofessional catalogers can provide the type of records needed at the rate of three per hour. Allowing for searching, OCLC and related processing costs, the cost is about $5.00 per title at Michigan. This rate will vary with local cost variables, but assuming this is a reasonably approximate average, the cost in contributed cataloging of 200 titles to be selected next year is about $1,000.

D. System requirements, capacity and personnel resources.

CICNet can currently make a commitment to provide the computing resources required to manage a collection of electronic journals in text format. The Task Force recommends that Gopher be recognized as the appropriate tool for access to this Collection, and that CICNet continue to explore other software to improve access. The following points provide background to this conclusion:

1. Housing the server currently consumes about 400 megabytes of disk storage (compressed) or 800 megabytes (uncompressed) and grows at a rate of approximately 5-10 percent per month. A significant increase in disk capacity will be required when full text searching for the server is implemented, which is expected to begin within the next six months. For the next 12-24 months CICNet will be able to support the server's disk requirements from the present CICNet resource base. However, it is anticipated that at some point CICNet will have to either limit additions to the server or seek additional support.

2. A related issue is the system's capacity to support interactive users. The situation is similar to the disk storage issue. However, a significant portion of current usage is from users outside of the CIC. CICNet would like to be able to continue to offer access to the freely distributed titles in the server on an Internet-wide basis but as system resources become constrained usage

by non-CIC sites may be restricted or eliminated. System resources are expected to support current growth for the next 12-24 months.

3. CICNet may discover that usage of the server for specific titles or by individual institutions is such that local mounting of all or part of the server may become desirable to handle traffic problems. The server is currently being mirrored in Australia for purposes of traffic control. CICNet will monitor use and make needed recommendations.

4. If the CIC intends to add fee-based titles or other proprietary materials to the CIC Libraries Collection, it will be necessary for CICNet to develop a method either to limit access to authorized users or to authenticate users on a institution-by-institution basis. It is not anticipated that CICNet will be able to do this in a way that requires individual accounts for users at authorized sites. The solution to this problem is complex and will require additional work by CICNet and others before progress can be made in this area. This activity may be of such significance that outside funding can be attracted to support it.

5. Staff of approximately .25 FTE is required to provide technical support for the server. CICNet anticipates being able to continue to support this from current resources for the next 12-24 months. Should additional activities be undertaken by the CIC in this area, personnel support could increase to .5-1.0 FTE. Additional financial resources will be needed if this level of support becomes necessary.

6. Total cost for this service is now approximately $23,000 per year. This includes $12,000 for server management, $8,000 per year for Unix system management, and $3,000 per year for Unix system networking costs. The latter is expected to climb as volume grows. CICNet costs for Unix system management and hardware are kept low because of scale economies and in-house expertise. In contrast, the total cost of duplicating a service of this kind at all CIC universities is approximately $250,000, depending upon the existing staffing and the availability of installed hardware, and would require staffing with particular Unix expertise that may not be available in the required numbers if each site is to be staffed.

7. System capabilities for handling images and multimedia storage and retrieval are not yet manageable on a production basis in a shared access environment, meaning possibilities for shared collections requiring images are not yet realistic. There are rapidly emerging de facto standards for conversion and transmission of multiple formats which need to be closely monitored. CICNet will continue to look for tools that can be placed on users' desktops that enable easy conversion and use of images and mixed format files.

CICNet is currently unable to provide any support for professional collection management and development. While the committee described in Appendix B will provide for the addition of professional librarians to these activities, the addition of a professional librarian to the CICNet staff would be highly desirable if the CIC libraries are going to rely on CICNet for housing and accessing an increasing number of electronic resources. One

method for accomplishing this would be through the development of a librarian's sabbatical program at CICNet. Under such a program, library staff could spend six months or a year working on CICNet-based projects. Part of this time could be spent at CICNet and part at their home library. Funding for this program would be required. Aside from the obvious benefits to CICNet, the program also has the advantage of providing a training experience for CIC library staff. Alternatively, the Management Committee may find that its activity is such that outside funding for its initial work can be found, or that ongoing funding from CIC libraries may be sought.

E. Archival functions.

CICNet will provide permanent storage of the CIC Libraries Electronic Journal Collection. This will include backup of online files, refreshing of files stored offline, and updating of storage media as formats and technology change. CICNet will explore the feasibility of various strategies and mechanisms to minimize costs while retaining information. Standards for such archival functions are not developed at this time. An initial effort is required to determine proper specifications, standards, and procedures for archival treatment of the Collection. CICNet should monitor the efforts of the Commission on Preservation and Access to develop archival standards and methods. Once the requirements are defined, CICNet will be able to determined what, if any, additional resources are needed.

While there has been considerable discussion about the role of the Center for Research Libraries or some other entity in the archival management of electronic journals files, the Task Force has concluded, based on members' work with the Center, that expecting such action in the near future is unrealistic. Such possibilities should be monitored for further consideration as opportunities develop.

F. Copyright and permission.

CICNet should attempt to develop an understanding with the publishers of each title in the CIC Collection that the title is being added to the Collection and its permanent storage is intended. This understanding will also include CICNet's intention to receive all new issues of each title, as well as any updates or corrections to previous issues.

At present, all titles in the CICNet server are available with no restrictions from their originators. The Task Force has been unable to find title requiring a subscription to use as a a test case for joint licensing. In Part II, a possible pilot project to handle university press journal titles is described. As outlined in ongoing issues (Part 2, recommendation C.3) the Task Force, should it be extended, would develop a licensing mechanism for journal subscriptions and propose an efficient mechanism to share subscription costs among CIC libraries.

G. Updating of new titles.

Regular updating of new titles added to the CICNet server and the CIC Libraries Electronic Journal Collection will be provided. CICNet will provide regular updates to the Electronic Journal Collection Management Committee of new titles added to the server. The Committee will take responsibility to disseminate to the CIC libraries information about new

titles on the server and titles newly cataloged for the CIC Libraries Electronic Journal Collection. CIC libraries will disseminate information on this project and provide training and facilities for Internet access to their own users.

H. Publicity.

CICNet and the CIC Libraries should publicize the work related to the CICNet server and CIC Libraries Electronic Journal Collection, and, as opportunities occur, cooperate with other groups interested in the collection of and access to electronic journals, particularly in the areas of acquisition, cataloging and access. The Task Force suggests that upon acceptance of this report by the CIC Library Directors, the report be posted to appropriate listservs and other opportunities for public presentation be pursued by the Task Force.

PART 2

Recommendations for Future Electronic Collections

A. Full Text Collections.

For the past two or three years, staff from CIC libraries and computing centers have been discussing the possibility of sharing full text documents stored at CICNet. These discussions have taken place in several venues, and particularly at NIRCOMM meetings. Proposals have ranged from full text files from commercial publishers such as Chadwyck-Healey, to individual texts or collections of texts like the Project Gutenberg collection, to collections of bills or speeches held at one or more CIC libraries. Unlike the CIC Libraries Electronic Journal Collection where Gopher software provides a simple and ubiquitous access tool appropriate to the collection, management of full text resources will require agreements among CIC libraries about sophisticated access and text manipulation tools such as PAT and its various clients, as well as shared standards such as SGML for tagging of texts themselves.

The Task Force finds that these projects are of such complexity that further work is needed to determine their feasibility. The current state of knowledge among CIC libraries about the management of full text collections is uneven, and the access tools require a great deal of training both for staff and users. There are some appealing ideas, but management of a shared collection is not practical at this time. Licensing issues also need to be addressed for both the software and the text files.

Several CIC institutions, through their libraries or through their computing centers, are developing such expertise, and will soon be in a position where a pilot project will be a useful way to explore the option of sharing collections and build a wider base of expertise. As in the case of electronic journals, an experiment provides a useful way to see what is practical.

Therefore, the Task Force recommends that CIC Library Directors should authorize the Task Force to convene a meeting of librarians and computing staff members from CIC and CICNet institutions with experience or interest in managing full text files, including

those with PAT/SGML experience. The purpose of this meeting will be to share their expertise, review available access tools, explore the concept of a pilot project based on texts for shared use, and build a common vision of what such a collection would look like. Participants should initially consider the potential of free or low cost texts for such a pilot. CIC institutions with current expertise include UIC, Chicago, Michigan, Indiana, and Northwestern, among others. Ohio State and Iowa are interested in working in this area. A meeting should be convened early in the 1993/94 academic year. Activities surrounding this meeting could include a survey of full text collections and access tools currently available within the CIC. This activity should be undertaken with broad participation and actively involve NIRCOMM in its planning.

The Task Force recommends this meeting as the next logical step to explore the feasibility of shared full text collections over the network. The logic of shared storage, shared cataloging, and shared access tools is as compelling for full text collections as it is for electronic journals, and we foresee that developing such collections will be both beneficial and cost effective to the consortium. We believe that we will eventually develop shared collections, but that the experts we have within our libraries will need to explore whether we should proceed to develop such collections now, keeping in mind the activities of other centers, such as the proposal that the Rutgers/Princeton Center for Electronic Texts in the Humanities establish a list of "in progress" tagging projects.

B. Collaboration with University Presses.

Within CIC, as well as on a national basis, university presses and libraries have the opportunity to work together to develop electronic collections that are inter-institutional and potentially devoid of the buyer-seller relationships that sometimes characterize the connections between libraries and commercial publishers. The Task Force explored several options for developing electronic collections that could be of mutual benefit to our university presses and our libraries. These included developing print-on-demand services for books that are not otherwise commercially viable, electronic alternatives to printed journals, full text electronic access to out-of-print titles, and provision of sample chapters or sample texts to help users examine books for purchase. We devoted a substantial portion of one meeting to a discussion of these issues with Colin Day, Director of the University of Michigan Press, who agreed to try to represent the interests of our university presses for the purposes of Task Force discussion. While the Task Force acknowledges that continuing dialogue with university press directors will uncover additional projects, the following are current opportunities for CIC library cooperation:

1. Pilot project for electronic journals. The directors of university presses at Indiana, Illinois, Ohio State, Wisconsin, Penn State and Chicago are potentially interested in developing a pilot project for mounting the full text of one journal from each press on CICNet. These texts could be incorporated into the CIC Libraries Electronic Journal Collection on a trial basis, which would provide experience to the managers of the Collection in handling an electronic version of a print journal including protection of intellectual property rights, and provide to the presses some experience in how such a collection might be used. Task Force members are willing to facilitate these explorations.

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2. Experiment with online access to university press publisher catalogs. CICNet should experiment with mounting one or more publisher catalogs from CIC university presses. We would expect the presses to take the initiative to develop this experiment, but we also expect that a resource of this kind will be useful to CIC library users and library staff.

3. Standard text/image rendering system. The libraries, along with the presses and CICNet should work toward developing a standard (official or de facto) rendering system for collections that combine text and image. There are some promising tools currently available. A standard could be of great benefit to presses as well as libraries in advancing the development of full text collections.

C. Outstanding issues related to shared electronic collections.

The charge of the Task Force was both broad in its scope, i.e., explore options for shared collections of electronic resources "on CICNet" and specific in its direction "to make recommendations regarding collection development, access, control and policies related to electronic journal and other full text electronic collections." The Task Force has made substantial progress toward fulfilling its charge with respect to electronic journals on CICNet, as well as identifying some issues which currently do not lend themselves to shared solutions. However, the broader scope of "explore options" and "other full text collections" still requires attention. Therefore, the Task Force recommends that its life be extended, either on a continuing or periodic basis, to explore, evaluate and make recommendations on the following:

1. Archiving of electronic journals and other full texts. There are questions about the technical standards for archiving electronic texts, preservation standards and the level of access to older material, including the protection of intellectual property rights.

2. Catalog records. Further work needs to be done with OCLC and RLIN and other groups on management of catalog records and development of standards. The impact on local consortia of these records may need further study. Holdings records present special concerns for interlibrary loan.

3. Licensing for fee-based journals. The Task Force reviewed the current options for acquiring a fee-based journal and finding none that meet the technical limitations of networking capacity, decided not to proceed at this time. However, the Task Force would like to continue to monitor the offerings and to address the necessary issues if a likely title appears.

4. Non-text, non-bibliographic data. The Task Force acknowledges the presence of such data but did not have the time to review options for shared collections. There are some expert staff in CIC libraries and computer centers that could inform such an exploration.

5. Government data. The Task Force would like to pursue value added options for providing government data to the CIC community.

6. Full text in CD-ROM format. The survey revealed broad but uneven interest in developing collections of full text in CD-ROM format. The Task Force would like to monitor the changing environment with respect to full text in CD-ROM format which is not now networkable. Alternatively, licensing implications of copying CD-ROM onto other storage media and making them available over the network have not been explored.

7. Bibliographic databases. Using CICNet for shared bibliographic databases is not desirable unless substantial cost advantages can be identified. The Task Force was unable to identify any database where cost advantages are likely, though there is considerable interest in databases where anticipated use is low and anticipated cost is high. The MathSci database from the American Mathematical Society is one such title. If the Task Force is continued, it should be charged to pursue joint licensing of bibliographic databases in order to explore these options. It is anticipated that system requirements at CICNet might be substantial for databases of this type.

8. Gateway services. Given the broad array of telecommunications options for commercial electronic services, the Task Force sees no advantage to using CICNet as a broker to other systems. Should cost advantages become apparent, this issue might need to be revisited.

9. Imaging technology. As noted above, storage and networking requirements for images and multi-media products are such that shared access is not feasible at this time. The Task Force recommends that this issue be continuously monitored as technology improves. Because of very high local storage costs, the possibilities for shared access to images imply potentially great economies of scale for CIC libraries. Several CIC libraries are experimenting with imaging technology, including Michigan's work with Elsevier, Northwestern's efforts within the RLG photographic image project, Penn State's work with the Commission on Preservation and Access, and the OSU Japanese Text Digitizing Project.

10. Financial issues. The Task Force's work has revealed broad possibilities for shared electronic collections, some of which appear to have significant scale economies. A model for sharing costs needs to be developed.

11. Cooperation with University Presses. Additional dialogue with university press directors is a continuing possibility for attention.

Appendix A

Collection Development Policy

The CIC Libraries Electronic Journal Collection is developed under the direction of CIC university libraries, and is managed by CICNet. The Collection consists of electronic journals of academic and research interest developed for shared use by CIC universities. Its aim, insofar as it is feasible, is to provide a centralized, comprehensive, authoritative and complete collection of electronic journals, built along broad and inclusive subject guidelines. This Collection is housed on the CICNet electronic journal server, which is initially defined to include the widest possible collection of titles, not only to provide the content of the journals, but also to provide a collection that will allow for the study and evaluation of the format use and the nature of the communication mechanisms used by the new media. Titles in the CIC Libraries Collection have been selected for enhanced access and full cataloging. The CIC Libraries Collection and the CICNet server are guided by the Library Bill of Rights and the ALA Statement on Intellectual Freedom, and thus do not exclude materials because of the origin, background or views of their creators nor on partisan or doctrinal grounds. At the present, the server consists of titles available without licensing fees, and is available to all.

Inquiries, comments, and suggestions for new titles should be sent to Paul Southworth (southworth@cic.net).

Appendix B

CIC Libraries Electronic Journal Collection Management Committee

Proposed Charge

The CIC Libraries share a commitment to provide a broad array of intellectual resources to their users. Among these resources are the emerging electronic journals. In order to maximize access and develop the most cost-effective acquisition, access and archiving of these titles, the Libraries and CICNet have established a partnership to provide these electronic journals through a shared collection located at CICNet. The collection is initially defined to include the widest possible collection of titles, not only to provide the content of the journals, but also to provide a collection that will allow for the study and evaluation of the format use and the nature of the communication mechanisms used by the new media.

Given the highly dynamic nature of electronic publications, an Electronic Journal Collection Management Committee is needed to exercise oversight of the collection and to assure that the policy issues that arise from a rapidly changing format are identified and addressed. This Committee will be appointed with an initial term of one year.

The Committee is responsible for managing the collection development policy of the CIC Libraries Electronic Journal Collection and the CICNet electronic journal server; for providing direction to CICNet on setting priorities related to acquisition, processing and access; and for providing advice to the CIC Collection Development Officers on the continuing development of the collection.

CICNet is responsible for:

* acquisition
* completeness of title backfiles
* maintenance, including keeping links to source sites up to date, keeping the gopher server organized, and hardware maintenance
* operation, including systems and tools support
* access to the collection.

The duties of the Committee are to:

* develop the Collection according to the established CIC/CICNet electronic journal collection development policy and recommend revisions to the policy as needed.
* establish priorities for collecting backfiles of titles in the Collection and for titles no longer published or distributed.
* establish cataloging priorities and oversee distribution of cataloging work in accordance with established cataloging capabilities.
* establish a mechanism to inform CIC libraries of newly cataloged titles.
* identify titles for addition to the collection that might not be identified by the general sweep of the Internet.
* consider the service/access issues of the server such as type of files and access tools available, organization, and menu structure.

* respond to CICNet requests for assistance and advice, including the disposition of titles whose technical requirements are outside the support of CICNet technology.
* monitor the trends in the nature of the literature included in and added to the collection.
* provide regular reports to the CIC Collection Development Officers at annual and mid-winter meetings of ALA, and as necessary to the CIC Library Directors. These reports will include general information on the status of the collection, changes and trends in the literature that affect the utility of the collection, and changes or enhancements to the collection that have been made to enhance or improve access.
* Provide liaison with NIRCOMM.
* monitor the ongoing resource requirement of the collection and make recommendations for needed changes.

Implementation of the Committee:

* Directors at each CIC library, on the advice of their CDOs, will nominate one individual who regularly uses electronic journals in their assigned responsibilities at their home library.
* The CDO representatives on the Task Force on the CIC Electronic Collection, in consultation with CICNet, will recommend a committee of three, representing reference, collections, and technical services concerns. Appointments will be made by Roger Clark on behalf of the Library Directors. A CICNet staff member will be appointed as an ex-officio member of the committee.
* The Task Force concurs that the quality of the personnel appointed are more strategic than the rotation of the membership.
* Task Force members will be responsible for providing orientation to the management committee.
* The Committee will hold one meeting with CICNet personnel for orientation and to establish the general operating methods that they will use.
* The Committee will maximize use of e-mail and conference calls to carry out its business.

Appendix C

CICNet Proposal for a Directed Field Experience or Practicum with Schools of Library and Information Studies

Introduction

Participating in the CICNet electronic journals server provides students with an opportunity to gain experience in a the development, management, and delivery of network-based information services. The set of tasks described below could be viewed as a series of individual projects or combined by the student to encompass more than one area. The tasks vary in nature from hands on work with the collection to analysis of policy issues to technical assessment activities. Some tasks could occupy very substantial amounts of time while others would only be appropriate for short term projects. Project management is under the direction of CICNet staff with the substantial advice and direction being provided by the CIC Library Collection Development Officers and the Task Force on the CIC Electronic Collection.

The CICNet electronic journal collection was begun in early 1992 primarily as an archival activity in response to concerns expressed by CIC collection development officers. Since that time the collection has emerged as the largest in the world and is heavily used by both foreign and domestic sites. Work is under way at this time to have the entire collection mirrored at a site in Australia to reduce some of the traffic over international links. At the moment the collection houses over 600 journals and is growing at a rapid rate. While the collection is designed to be utilized by anyone on the Internet, its support by CICNet and the CIC libraries is motivated by a desire to directly enhance the CIC members' access to electronic resources and to improve their ability to manage such resources.

CICNet is a regional TCP/IP network funded by the National Science Foundation. CICNet provides NSFNET access for over 250 institutions and organizations in the Midwest and is governed by the members of the Committee on Institutional Cooperation (CIC). CIC members include all members of the Big Ten athletic conference and the University of Chicago. Since its founding in 1988, CICNet has had a strong focus on network-based information services and has sponsored and/or developed a number of projects in this area. CICNet staff enjoy a close working relationship with the libraries of the CIC member institutions. CICNet headquarters are in Ann Arbor, Michigan.

CICNet activities are deeply embedded in the culture and technology of the Internet and NSFNET. While the student is not expected to be an Internet expert, it is expected that the student will have some awareness of the Internet and be familiar with such issues as: current organizational structure of the Internet; network navigation tools such as Gopher and WAIS; and network information resources such as FTP archives, Usenet news, listservs, etc. The CICNet e-journal server is housed on a Unix system. It is not expected that the student will have either skills or expertise in Unix system administration. However, it is expected that the student will have experience with desktop computing system platforms, such as the MAC OS, MS-DOS, or Windows.

Project Tasks

1. Contribution to the development of a collection development policy for electronic journals

It is likely that this issue will receive considerable attention from the CIC library CDOs. However, the student could aid considerably in the process through the analysis of the specifics of this issue. Currently, CICNet collects all "publications" that fit within its definition of an electronic journal. Given that the number of new journals is growing rapidly and that there is an increasing amount of differentiation in the level of scholarly content, the collection may need to begin a more discriminatory collection policy.

In addition, the current definition of what constitutes an e-journal needs to be sharpened. Currently the definition is more notable for what it excludes rather than what it includes. Specifically excluded are publications that consist of discussion oriented e-mail from a news group or listserv. Current holdings may be considered to fall into four major categories: scholarly journals, zines (small independently published magazines); newsletters, and newspapers.

2. Analysis of current holdings and determination of cataloging and collection status

At this point in time the collection lacks a well organized listing of all journals held and their current publication and acquisition status. Due to a variety of factors, many of the journals that appear on the Internet have a fairly short life- span. Hence the need for careful tracking of the journals' status.

Current acquisitions procedures vary widely. In some cases, the journals are collected on an automatic basis. In other cases, the work must be done manually. For some, there has only been one collection "pass" (which may have netted more than one issue) so an acquisitions process has not been set. The collection needs to include acquisition information for each title held and its current status. In some instances, automatic collection of new issues was set up but has failed due to a variety of reasons. This task could also include development of a formal agreement to use with publishers to establish CICNet as an archives site which the publisher agrees to supply with all new issues.

This task also includes some preliminary work in cataloging these titles, specifically, determining what titles have been cataloged (a number of CIC sites have a small number of e-journal catalog records in their OPACs) and any further work that needs to be done on existing records. It is quite likely that the CIC libraries will implement a shared cataloging process for e-journals in the near future and the student could provide input into the development and implementation of that process.

3. Location and acquisition of back issues

The collection currently has many gaps in its holdings. In order to move the collection from a demonstration project to a true collection of the quality required to be considered an intellectual resource by the CIC libraries, a major effort must be undertaken to build a collection that includes, to the fullest extent possible, a complete set of all issues of each

journal. This will require detective work in either searching the net and/or working with the publisher/editor to locate back issues.

4. Copyright issues

The collection is designed to contain only those e-journals that are in the public domain or which give explicit permission to freely copy and distribute the journal. It is believed that in some cases, while the journal may fulfill this criteria, articles in some journals may not. Given the size of the collection today, a thorough review may be a daunting task. However, it is important at least to begin the investigation of this issue and to identify the extent of possible problems.

5. General maintenance issues

This will probably occur as a result of activities under tasks 3 and 4 but is it stated here for the sake of clarity. Due to staffing limitations and the project's focus on demonstrating the scope of e-journals available, general maintenance has slipped. In some instances journals are mislabeled and in other cases, more than one issue is contained in a single file.

6. Structure of the collection

Given the hierarchical nature of the collection and the storage and navigation tools employed, an analysis of how to categorize (as opposed to catalog) the collection would be very useful. Currently the collection is presented to the end user as both an alphabetic listing and under the Library of Congress Subject Headings. There has been considerable discussion of the organization of this collection in particular and the organization of collections of Internet resources under Gopher, in general. A careful review of this issue, recommendations, and a possible pilot test would be useful.

7. Investigation of full text retrieval and analysis tools

At this point the CICNet e-journal collection is housed in a Gopher server. Each issue of a journal is held in a separate file which represents the end point of a menu tree. As presently organized a user may execute a full text search of a single issue but cannot search the full collection or any subset of issues or abstracts. Ultimately, one of the strengths of an electronic collection is the ability to execute a full text search. An analysis of methods to accomplish this under Gopher or with other full text retrieval tools would be very useful. Such an analysis should include end user access and interface issues, storage and indexing requirements, and system hardware and software requirements.

8. Inclusion of commercial e-journals in the collection

An important reason for undertaking the e-journal project is to prepare the CIC and CICNet for providing access to restricted access or commercial e-journals. A small number of commercially published journals are already available via the network and it is anticipated that this will be a major means of distribution for publishers within the next few years. Keeping in mind that this is an extremely complex issue, an analysis of the current situation and how the CIC might proceed would be very useful. Such an analysis should include the

following: a description of the current environment and current electronic distribution projects, benefits to the CIC of electronic distribution and a rationale for supporting it, methods for using Internet access but limiting access to CIC sites or a subset thereof, and access issues at the campus level, especially with respect to platform requirements.

Appendix D

SURVEY OF ELECTRONIC RESOURCES IN THE CIC LIBRARIES

Summary of Results

The following survey was conducted in order to obtain some brief information about how each of the CIC institutions is currently handling electronic resources. One response was received from each CIC institution and used in tabulating the responses. A brief summary of the highlights from the survey follows:

1) All of the CIC libraries either maintain a gopher server in the library or can provide access to gopher servers elsewhere in some way. This provides a universal way for CIC institutions to be able to use the archives of electronic journals maintained at CICNet and provides for one universal method of cooperation in this arena.

2) All of the CIC institutions support the notion of a comprehensive, centrally managed and accessible file of electronic journals and texts. Some raise cautions about traffic on the network; determining what should be close at hand and remotely available; and the ultimate costs to the institution, both in terms of networking costs and in terms of costs of the project.

3) Of the institutions responding there are several who have significantly more experience with electronic texts than others. Interestingly, the some are more experienced in electronic journal issues and others appear to have more experience with other full text database issues, ranging from ASCII full text journal articles to SGML (Standard Generalized Markup Language) encoded texts to networking of full text CD-ROM files.

In conclusion, a few institutions are leading the way; many are trying to accommodate within current technology and budgetary environments to providing electronic formats, but there are currently no clear directions about "best" ways. There is, however, considerable interest in trying to work out the issues and manage electronic texts as cooperatively as possible.

SURVEY OF ELECTRONIC RESOURCES IN THE CIC LIBRARIES
Questions and Tabulated Results

This is a tabulation of the results of a survey of libraries in the CIC institutions to obtain some baseline information from each institution about its collection of electronic resources.

1. Does your library currently provide access to electronic journals? How many?
   - 3 No
   - 3 Yes, via Gopher and/or CICnet collection only
   - 7 Yes, some local responsibility
     Number of titles ranges from 1-50.
     One institution indicated that they had cataloged one title; another had cataloged 114 titles.

2. Current Issues

   A. Method(s) of patron access
      - 2 Provide a print copy of e-journal text for patron's use.
        Run printout of the e-journal text by request only
      - 4 Provide direct online access to the e-journal text
        Provide printers for patrons to print e-journal text themselves
      - 3 Allow downloading to personal computers
      - 2 Allow downloading to user account in main computer
        E-mail e-journal text to appropriate requester (such as faculty)
        No patron access currently available
      - 2 Other
        --provide access through Gopher to CICnet
        --titles available in stand alone textual analysis system

   B. Method(s) of current issues storage

      1. Applicable methods used:
         - 4 Through the use of gopher
           Provide access to e-journal text through OPAC
         - 3 E-journal text archived in main computer for on request retrieval
         - 4 Internet access to remote resources
           Other online access
         - 2 Printouts bound and shelved
           Other

      2. How long are current issues kept?
         - 1 Current only
         - 3 Indefinitely
         - 1 Depends upon CICnet's retention practices

C. Method(s) of patron notification

1. Do you inform patrons of new e-journal issues received?
   8 No
     Yes

2. How are patrons notified?
   E-mail e-journal text
   E-mail issue citation
   E-mail tables of contents
   Mail print notification
   Other

3. Back Issues

A. Method(s) of patron access

1. Applicable method(s)
   1 Provide a print copy of e-journal text for patron's use
   Run printout of the e-journal text by request only
   3 Maintain an electronic archives of back issues
   1 Other
   --provide access to CICnet collection

2. How long are back issues kept?
   3 Indefinitely
   1 As long as CICnet retains

B. If you electronically archive back issues of e-journals, what medium do you use?
   Floppy disk
   Microcomputer hard disk
   3 Mainframe disk drive
   Mainframe 8 mm cartridge
   Mainframe tape drive
   Other

4. Cataloging of e-journals
   2 All e-journals are fully cataloged and classified
   One institution only catalogs those held locally.
   All e-journals are briefly cataloged and not classified
   2 Selected e-journals are fully cataloged and classified
   1 Selected e-journals are briefly cataloged and not classified
   1 Other
   --No, but discussions have begun about cataloging remotely available journals.

5. Types of e-journals acquired
   - 6 Free e-journals
   - 5 Subscription e-journals
   - Title noted by two institutions: Current Clinical Trials
   - 5 Scholarly e-journals
   - 3 Newsletter e-journals
   - Others

6. Who selects and/or recommends subscriptions to e-journals?
   - 3 Faculty
   - 5 Librarians
   - 3 Students/patrons
   - 2 Staff (other than librarians)
   - 1 Others
   - --no policy

7. Which department in your library has the responsibility for subscribing to and setting up check-in records for e-journals?
   - Collection Development
   - 3 Acquisitions
   - Computing/Automaton Office
   - Cataloging
   - Reference
   - 3 Other
   - --work coordinated between serials acquisitions and subscribing library
   - --no subscription; no check-in (2)

8. Which department in your library has the responsibility of distributing e-journals? (i.e., providing access to patrons, physically storing, or retrieving archived e-journals)
   - Collection Development
   - Acquisitions
   - 2 Computing/Automation Office
   - Cataloging
   - Reference
   - 4 Other
   - --Information Arcade; departmental libraries
   - --electronic resources coordinator or reference librarians
   - --storage and access via gopher

9. How do you respond to interlibrary loan requests for e-journals
   - Email the text of the e-journal to the requester
   - Copy the text to a floppy diskette and mail it to the requester
   - Print a paper copy of the text and mail it to the requester
   - 4 Other
   - --fax the article with instructions on subscribing to it
   - --only supply the one we publish and refer other requests to source
   - --no requests received yet (2)

10. Electronic Texts (other than e-journals)

A. Does your library currently provide access to electronic texts (other than electronic journals)? If so, approximately how many?

3 No

10 Yes, with a wide range of responses from one newsletter or the Library of Congress exhibits to several thousand. One library is in the process of mounting ASCII text for 1300 journals; another has a pilot project for full text including the Shakespeare corpus and the Oxford English Dictionary and a networked multimedia product, Perseus, a text and image product on the ancient world.

B. Method(s) of patron access

2 Provide a print copy of electronic text for patron's use

1 Run printout of the electronic text by request only

5 Provide direct online access to the electronic text

4 Provide printers for patrons to print electronic text themselves

5 Allow downloading to personal computers

2 Other
--gopher
--dependent upon data source and mounting location

C. Method of electronic text storage

5 Through the use of gopher
Provide access to electronic text through the OPAC

3 Electronic text archived in main computer for on request retrieval

4 Internet access to remote resources

2 Other online access

1 Printouts bound and shelved
--because of restricted access to the database

5 Other
--local server
--networking CD-ROM databases

D. Cataloging of electronic texts

3 All electronic texts are fully cataloged and classified
All electronic texts are briefly cataloged and not classified

2 Selected electronic texts are fully cataloged and classified

1 Selected electronic texts are briefly cataloged and not classified
Other

11. Does your library maintain a gopher?

9 Yes

4 No

12. Can your library provide access to gopher servers available elsewhere?

13 Yes
No

13. Would your institution support the notion of a comprehensive, centrally managed and accessible file of both current and back issues of electronic journals and texts? (This is a non-binding response.)

10 Yes

No

14. A listing of library's current e-journal subscriptions and electronic texts was requested. Three institutions responded with lists from one to fifteen titles. The only duplication was with Postmodern Culture (3), Psycoloquy (2), and EJournal (2).

Report

of the

Scholarly Communications Task Force

May 10, 1994

Gail McMillan, chair
Paul Metz
James Powell
Maggie Zarnosky

University Libraries
Virginia Polytechnic Institute and State University

This report was distributed at the May 12th meeting of the Library Administrative Council (LAC) and put on the agenda for discussion at its next meeting. On May 19, 1994 this report was discussed, many of the questions it raised were answered and all of its recommendations were approved for implementation. This version of the report contains annotations (made June 24, 1994), especially to include answers to questions posed, and describes further activities of this task force.

Contact Gail McMillan (gailmac@vt.edu) (703-231-9252) with comments and questions.

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Report of the Scholarly Communications Task Force

Executive Summary

Since University Libraries' initial efforts to provide access to electronic journals in 1991, much has happened in this area of scholarly communications, not the least of which is the rapidly growing number of journals freely available via the Internet. In 1991, the ARL directory of electronic journals listed 27, with only seven of these being refereed. Today there are over 50 such titles and nearly half of them are refereed. Our library currently provides access to 12 electronic journals, double the number of experimental subscriptions placed in 1991.

University Libraries at Virginia Tech is one of the relatively few libraries that has fully accepted electronic publications as a true scholarly resource and provided access for its academic community. There is no doubt it was the correct decision when the Libraries decided not to wait for others to find solutions to supporting this new scholarly resource. If we had done so, we would still be waiting for those solutions. Instead, we have learned from our experiences accessing, storing, processing, and providing access to an increasing number of electronic journals. Now the Libraries are in a position to improve our methods and continue to learn from these evolving scholarly materials.

The Scholarly Communications Task Force strongly recommends fully implementing those policies and procedures not already in place as described in the *Report of the Task Force on the Electronic Journal*. However, having learned from three years experience with electronic journals on VM1, the task force believes that the Library Gopher server is a better system for storage, and through which to provide access--both campus-wide and worldwide. There are many reasons for supporting this recommendation, including:

* It is already owned by University Libraries.
* Purchasing additional disk space for the Library Gopher would be more economical (now and in the long term) than is renting space on VM1.
* Journals would be accessible without a VM account and access would be anonymous, thereby providing a wider ranging library service reaching beyond our immediate university community at no additional expense.
* The Library Gopher is capable of delivering a broader range of journal formats than does VM1; it is ready now for more sophisticated journals than the text-only ones to which the Libraries currently subscribe, including journals that have (or may have in the future) digital images (still and moving) and audio.
* Storing journals electronically currently requires 22Mb storage on VM1, about twice the amount required in 1992.
* Because of better control and in-house processing, a smaller amount of storage space is required for storing the same number of issues on the Library Gopher.
* The Libraries currently have the equipment and the staff available to do this in-house.
* Retrieval can be done with the assistance of an intermediary (i.e., librarians and information specialists), or by the scholars themselves.

The task force recommends that the Library Gopher provide storage and access to electronic journals and subsume all related uses of VM1 for electronic journals.

Gopher is not necessarily the *ultimate* in electronic journal access mechanisms. Other means, such as World Wide Web and its companion client Mosaic software, offer more flexibility in organizing and presenting information and more opportunity to include instructions at the point where they would be most helpful. However, the Library Gopher will serve the Libraries' needs as well as those of our user communities while not limiting the provision of access to the kinds of journals that are currently available for the broadest spectrum of readers.

Since the University Libraries also support the Scholarly Communications Project, the **Library Gopher should provide an invisible link to the publications of the Project**. The journals published by the Project should not be copied to the Library Gopher; this would be an unnecessary duplication and is not necessary to improve access or for security purposes. It would be most appropriate for electronic journals that are described in VTLS to be directly accessible from the online bibliographic and holdings records, however, this is not currently possible.

To reiterate the policies currently in place, we believe that **electronic journals should remain in electronic form at every stage**, from initial processing through to reader access. We do not recommend printing, binding, or shelving these materials and none of the task force consultants recommended doing so. We do not recommend transferring any of our issues of electronic journals to diskettes or computer tapes. This would result in undesirable delays in access to a publication medium that is designed to take advantage of immediate and near-constant availability. Because the Interim University Librarian (and the Vice President for Information Systems) fully support this philosophy, appropriate funds will remain available to maintain access to electronic journals.

To support this policy, the Libraries must provide distributed access--distributed throughout the Virginia Tech (and larger) community and throughout the Libraries. This means storage space must be evaluated and added before anticipated growth so that we can ensure that the server has the appropriate capacity to remain nearly-constantly available to many users simultaneously from local and remote terminals. To take full advantage of electronic journals, the Libraries' server must be promptly updated when new titles and new issues of subscriptions become available.

Access to *any* of the Libraries' online information resources (e.g., VTLS, the CD-ROM network, and the Library Gopher) is, of course, dependent upon an individual's access to telecommunications lines and equipment. Not everyone in our university community (let alone the broader community of library clientele served by the University Libraries) has this; therefore, **the Libraries must provide access within their walls** to PCs and Macs equipped with viewing software as readily available as other equipment with which to read library materials (e.g., microfilm readers and CD-ROM players).

Availability is not enough. **It is also the Libraries' responsibility to provide education and training through its regular and extraordinary programs** (e.g., Faculty Development Institutes, internal bibliographic instruction, Collegiate Librarian Initiative, and the Internet Interest Group).

No area of the University Libraries should be impervious to electronic journals. This extends from the public service areas to the technical service areas. To successfully integrate electronic journals into our technical processing units, **automatic receipt and posting should be implemented wherever possible**. This will somewhat relieve the Serials Receiving staff from the burden of additional check-ins of still-unique library materials.

At this time the Scholarly Communications Task Force is prepared to seek more than simple "near-term" solutions. We feel the University Libraries are now in a position to draw upon our past three year's experiences with electronic journals and to provide storage and access to future scholarly journals that contain more than ASCII characters, such as mathematical notations and in-line graphics. The task force has addressed these and other issues with the goal of perpetuating this exceptional information resource. Every area of University Libraries should promote full implementation as well as full use of electronic journals.

Report of the Scholarly Communications Task Force

Introduction

On September 14, 1993, the Interim University Librarian charged the Scholarly Communications Task Force to examine the issues raised by the availability of increasing numbers of electronic journals. These issues included, but were not limited to, accessibility by our university community and by the Libraries' clientele, display media, and technical processes. In response to her charge, this report discusses the task force's recommendations and addresses implementation issues past, present, and future.

Gail McMillan chairs the task force. Paul Metz and James Powell are original members, while Maggie Zarnosky joined the task force on November 30, 1993. In addition to weekly discussions among the task force members, this winter we met with many people throughout the University Libraries who have each contributed in a variety of ways to making electronic journals accessible. We sought to gain understanding from their expertise and we learned much from them. Their questions and concerns about future access to electronic journals through University Libraries services are incorporated in this report.

The task force agrees with the principles of access, storage, and technical processing as put forth in the University Libraries 1991 *Report of the Task Force on the Electronic Journal.* Those initiatives demonstrated the Libraries ability to provide a new and, at the time, quite unique service with on-hand resources. **The Scholarly Communications Task Force recommends that the University Libraries refine the methods, set new goals, and fully accomplish those goals for providing electronic journals.**

Two 1991 recommendations have not been implemented. These are (1) processing receipt of electronic issues within the Serials Receiving Unit and (2) integrating electronic journals into Reference Department's activities, such as bibliographic instruction. It was perhaps premature to expect this to take place in 1991, but there is no doubt that the Libraries are now in a position to do so.

Throughout the winter the task force met with University Libraries personnel who have contributed in a variety of ways to making electronic journals accessible. We sought to gain understanding from their expertise and to learn from their questions and concerns about future access to electronic journals through University Libraries activities and services. Following our discussions, we acted upon many of the suggestions made by these task force consultants. The individuals the Scholarly Communications Task Force consulted are listed in Appendix A.

While we envision that electronic journals and their means of access will continue to evolve and change, University Libraries must continue to provide storage and access to this information resource of vast potential. Every participant in any aspect of electronic journals has learned immensely from the experience, and we will continue to learn by subscribing, storing, and providing access to electronic journals now and in the future.

Electronic Journals at the University Libraries

Like the previous task force, we believe that there is now and will continue to be an important role for libraries in providing access to and storage of electronic journals. This is an imperative service to both information producers and information consumers, for libraries direct their clients to the best sources of information and increasingly this information is becoming available electronically. These library materials are available to many users rapidly and simultaneously; they are never 'unavailable' while circulating or while at the bindery because issues are never 'missing' from the electronic 'shelves.' As the collection grows, they do not consume shelf space, and while storage space on a server is a definite consideration, the largely text-only journals require moderate storage space. The potential for cost savings is still a very important factor because electronic journals continue to be largely free of subscription charges. As the library's collection grows and electronic journals develop into more sophisticated publications, with digital images for example, the need for additional computer storage should be factored into the Libraries' annual budget.

Following the 1991 recommendations of the Task Force on the Electronic Journal, access for the Virginia Tech community has been though VM1. This was a very satisfactory first step, but changes since then require that University Libraries re-examine this system of information storage and retrieval. Changes include: a university-wide focus on decentralized computing, the ability to easily provide worldwide access to our electronic journal collection, expanded journal formats (i.e., not limited to text), the need to move processing out of the Library Automation Department and into the appropriate unit(s), and the in-house development of the Library Gopher (originally called Nebula). Today, unlike three years ago, the Libraries have a server, and personnel in Library Automation have successfully experimented with providing access to electronic journals through it. It is the logical replacement for VM1 at this time and it meets not only our current but our future needs as well. **The task force recommends that the Library Gopher provide storage and access to electronic journals and subsume all related uses of VM1 for electronic journals**. In addition, **we recommend installing an invisible link from VM1 to the Library Gopher for participants in the university community who are accustomed to this access point**; the VM Gopher client makes this possible. Through current and on-going education and training, the Libraries has already begun to eliminate the need for VM1 access, but it should remain in place until the migration is complete, or as long as it is still affordable and useful to our clientele. *[LAC recommended that the VM1 access point (as a link to the Library Gopher) should remain available as long as possible.]*

Implementation Issues

Electronic journals on the campus mainframe systems should be phased out in favor of a more easily accessible, distributed information system known as Gopher. Gopher presents information in a hierarchy of menus, a manner very similar to the INFO system on the VM1 mainframe. Each line of a display is a menu item which, when selected, presents additional menus or text. (See Appendix B)

For quite some time the university administration has been encouraging its mainframe users to migrate to distributed systems. Therefore, it is appropriate that the Libraries' collection of electronic journals migrate from VM1 to the Library Gopher as soon as possible. Gopher has many advantages over the INFO system, including:

* Gopher supports the delivery of non-textual formats.
* Gopher can be configured to be publicly accessible (unlike INFO, which requires the end-user to have an account on the server).
* Gopher supports distributed information access and delivery.
* Gopher supports advanced search capabilities.
* One of several widely accepted information delivery systems on the Internet, one Gopher is also easily integrated with other Gophers as well as World Wide Web servers.

With various clients available on library systems and around campus, virtually all computer-literate users in the campus community will have some access to the Libraries' electronic journal collection.

Storage

VM1 will cease to be a viable storage location for electronic journals in the very near future due to decisions made by the university administration. The Scholarly Communications Task Force has determined that the Libraries' UNIX systems (specifically the Library Gopher on a DECstation 5000), installed since the last report, have the necessary hardware, connectivity, and software to store and make available electronic journals in a fashion similar to the current system on VM1. **All electronic journals that are subscribed to by the Libraries, but that are not published by its Scholarly Communications Project, should be copied to our local server and made available through the Library Gopher.**

The publications of the Scholarly Communications Project are the only electronic journals in the Libraries' collections which should *not* be stored on the Library Gopher. These should be accessed through a link between the Project's and the Libraries' Gophers. The Project's server (originally known as Borg) is part of the Libraries' computing systems and is covered by the same policies as the DECstation; of primary concern is the fact that all journals stored on this server will be retained indefinitely.

Other sites which purport to retain large, comprehensive collections of electronic journals contain collections which are not complete and are not maintained in a timely manner. Sites on the Internet which identify themselves as the primary site for a particular publication are also a concern as a potentially inconsistent source, since sponsorship can change (e.g., *Journal of Extension*, now edited at Virginia Tech, will move every two years), or they may not be committed to also serving as an archive.

There are also advantages to local storage, such as faster and more reliable access and value added services such as full text searching with WAIS. Local network failures are easier to track down and report, and the nearness of the library's servers to the main contingent of University Libraries' clients (campus faculty, staff, and students on local networks) will, in general, make delivery of journal texts and graphics quicker.

The Scholarly Communications Task Force recommends electronically storing journals on site. University Libraries should continue to acquire electronic journals because if we provide access only, we cannot control the maintenance or preservation of issues. If off-site administrators should decide to discontinue providing access to journals, our clientele would be left without access to any titles not archived on the Library Gopher. There is no other single source to which we could merely link that would provide the same level of service or security that University Libraries can provide by storing electronic journals on its own system. (See Appendix C for a summary of electronic journals available through CICNet.) By storing the issues received through subscriptions, the Libraries can better guarantee access to our clients while providing optimal response time due to the immediate proximity of the server. **The task force further recommends that emergency policies and procedures, similar to those made for the HP, be developed for the Library Gopher server.**

Access Issues: Education and Training

We see the need for integrating electronic journals into the Libraries' other information resources so that library personnel become accustomed to them as a regular part of the Libraries' collection and use them as they would other library materials. This is being done through standard bibliographic control and has been initiated through recent training and user education. The principal education and training issues that currently exist involve informing the Libraries' staff and user community about the availability of electronic journals. The Libraries must also provide information and instruction about their accessibility.

The task force recommends that the Training Coordinator (Brenda Hendricks) and the Network Information Librarian (Harry Kriz) coordinate staff training for public services personnel and others who need to be aware of these library materials but who will not be involved in the technical processing of them. All staff will benefit from a better understanding of this area of the Libraries' collections. Instruction could range from using electronic journals as examples to be incorporated into general training sessions, to working with individual library departments through utilizing in-house 'experts' on electronic journals.

Instruction of the immediate user community should be the responsibility of the Reference Department and should be wide ranging. Creation of a specific VTLS "Help" screen about electronic journals could also be a source of some basic information for its users. Another valuable and necessary means of providing instruction to users would be handouts developed by the Reference Department to instruct users in accessing and downloading information from electronic journals on the Library Gopher. (See a draft handout in Appendix D) Individual bibliographers should include discussion of electronic journals in their course-integrated instruction sessions, as well as publicize the electronic journal collection through outreach sessions to their departments. Additional publicity should be available through articles submitted to the *Newman News*, *Spectrum*, *BiblioTech*, and the *Collegiate Times*.

Further, **it is time to thoroughly integrate electronic journals into technical services processing** (as CD-ROMs have been) so that they can be handled as much as possible as other serials (e.g., full VTLS access and control). At the same time that the task force gathered information for this report, personnel from the Serials Group began drafting procedures for full technical services processing of electronic journals. The Serials Group also had an introductory workshop in electronic journals. (For further discussion, see the section below on "Internal Processing: Serials Receiving Procedures.)

Public Service Issues

Internet connections are currently available in the second and fourth floor reference areas, as well as in the Media Center, though available terminals are not (and need not be) dedicated to electronic journal access. Both IBM or Windows and Macintosh platforms in the ERA are available. The Art & Architecture branch library is similarly equipped. Those branch libraries not currently able to support public access should be provided with the necessary equipment, software, and connections as soon as possible, with the Reference Department head identifying these needs. Library patrons interested in electronic journals should receive instructions for using both platforms.

The task force recommends that the Libraries provide terminals in open areas of Newman and the branch libraries that support both high end and low end electronic publications. Information specialists and librarians staffing reference service points must be willing to help library patrons access electronic journals. We hope that a willingness to do so will arise out of additional information and training specifically about electronic journals provided to the Libraries' staff and faculty.

Patrons should also be encouraged to download information to a floppy disk whenever possible. Shared printers for the Mac platform are available in the Media Center, while patrons downloading from the IBM will not have ready access to a printer. The prospect of providing printing facilities for both the IBM and Mac platforms can be addressed in the future but we recommend that selected stations be equipped with Postscript printers. Many library clients will access electronic journals through their own systems where they are already familiar with those printing and downloading capabilities. In addition to having the options of downloading to diskettes and printing to paper, readers will have the opportunity to mail articles to themselves as a way of retrieving a copy of an article, as some Gopher clients support this capability.

Collection Development: What Electronic Journals Will We Make Available?

The Scholarly Communications Task Force recommends that **electronic journals to be added to or deleted from the University Libraries collection should meet the same criteria as other library materials.** Although few electronic journals charge subscription fees, all require storage and all exact demands on staff time. These costs, however, must be weighed against the potential benefits of subscription. To facilitate efficient cost/benefit

analysis of proposed new titles, we should create an intralibrary, online form that will ask for the following information:

* Title
* Sponsorship
* Audience, presumed beneficiaries at Virginia Tech
* Frequency
* Anticipated annual storage requirements
* Method of receipt (active/passive)
* Formatting (ASCII, Post-Script, etc.)
* Any special considerations with implications for staff time

This form (See Appendix E for a draft) should be submitted to the Principal Bibliographer by the subject bibliographer who is proposing that the title be added to the Libraries' information resources. It might also be submitted by a faculty member outside the library. The Principal Bibliographer will review the form and forward it to the Library Gopher Administrator (i.e., James Powell), who will provide an assessment of the impact of the proposed subscription. Important considerations will be whether the University Libraries have the necessary equipment and technology to provide full access. The current Gopher Administrator does not anticipate that we will encounter electronic journals that cannot be stored and delivered to the Libraries' collection in the foreseeable future, provided sufficient disk space is available. The Principal Bibliographer, drawing also from the advice of subject bibliographers, will decide whether a subscription is warranted and, if so, whether a back file should be sought.

In addition to enhancing the Libraries' collection by providing timely and easy access to electronic journals, bibliographers have a somewhat unique collection maintenance opportunity. If they decide to discontinue a title, they could also decide whether to retain the title or to have all issues purged from the Library Gopher. The task force recommends that **if issues of discontinued titles are retained, a note should be added to the menus of titles and issues available that tells readers "Current issues of this title are no longer available through the Library Gopher."**

The task force continues to see the potential in maintaining electronic-only access to electronic journals. We should not develop a print > bind > shelve policy for them since this would greatly reduce the advantages of this medium. However, it is the Libraries' responsibility to educate and train our clientele so that they can realize the advantages of the electronic journal collection.

In addition to recommending that electronic journals remain in this format, we do not recommend that any issues be stored on tape or diskettes. We want to take full advantage of current technology to provide immediate access to all of our electronic journals whenever possible. In the future, the Libraries may want to store on CD-ROM provided that direct links to the Library Gopher are possible. If the Libraries' electronic journal collection grows tremendously and if the Libraries (i.e., Scholarly Communications Project and Special Collections collaboration) purchase a CD-ROM writer for storage of digital images and other electronic collections, storing journals on CD-ROMs may become a worthwhile option. This

could greatly reduce the cost of CD-ROM archiving and retain in-house control of the collection at all stages of production.

Direct access to electronic journals through VTLS is still a goal well worth working towards, but is not possible at this time. The VTLS InfoStation does allow links from the bibliographic and holdings records to multimedia data on other systems. Whenever these stations become available in the University Libraries, consideration should be given to writing the necessary programming to take advantage of this capability. University Libraries' administration should also assume responsibility for funding access to electronic journals since it not be logical to divide the responsibility between Library Automation and Reference Departments.

The Library Gopher has the capability to limit access to our university community and the task force recommends this. Electronic journal access through the University Libraries will be open to anyone who comes onto campus, but we would need to request special permission from each journal editor or publisher to open access to others outside our primary clientele. This is the Gopher equivalent to expecting library patrons to come into Newman or a branch library to use noncirculating materials.

We feel that this is necessary because of previous experience: When we subscribed to the *Electronic Journal of Communication*, we told the editor we would be providing access to our university community and that was acceptable to him. However, in experimenting with access through the Library Gopher, the *EJC/REC* editor discovered we provided worldwide access and they rebuked us for expanding access outside of our original agreement. Therefore, the task force feels that it would, otherwise, be necessary that we receive explicit permission to provide access beyond our campus community. Library Automation is in the process of installing a separate Gopher which limits access to its contents to the IP (Internet Protocol) address on campus (.vt.edu). All restricted electronic text and data will reside on this Gopher and will be transparently linked to the main Library Gopher.

This still provides broader access to our electronic journals than the VM1 system, which requires all users to have an account specifically on that system. A call to a CMS Gopher client can be installed in place of the existing system on VM1. This will connect users to the electronic journal portion of the Library Gopher. No electronic journals would reside on VM1; they would have only a link to the library server.

Internal Processing: Serials Receiving Processing

The previous task force envisioned a scenario where electronic journals would be handled like serials in other formats. Current practices fall short of this goal by being subscribed to, checked in, and posted from the Library Automation Department. Serials Receiving is nearing completion of its large automation project which moves receiving information for serials from paper files to VTLS check-in records. This increasingly automated environment now makes it appropriate to move internal processing of electronic journals to its appropriate processing location in Serials Receiving. Where they previously shared fewer, less capable systems, staff now have workstations capable of accessing VTLS, Internet, and the Library Gopher.

Preliminary training has already been provided for the Serials Group in the form of a hands-on introduction to electronic journals and Gopher (Jan. 20, 1994). Staff responsible for receiving and claiming electronic journal issues will receive additional training on FTP, Gopher, and other currently used journal delivery mechanisms as soon as VM1 storage of electronic journals is phased out for currently received titles. **As soon as our electronic journal collection is migrated from VM1 to the Library Gopher, new procedures already under development should be implemented by Serials Receiving staff.** (See Appendix F.)

By July 1994 internal processing can be streamlined to parallel internal processing of other serials in the newly forming Serials Receiving/Binding Unit. Internal processes such as VTLS check-in, listing on holdings records, and full bibliographic access (cataloging, maintenance, authority (name and subject), etc.) are sufficiently mature processes that electronic journal processing can flow relatively smoothly through the Technical Services Department.

The Scholarly Communications Task Force recommends that each issue of an electronic journal will be made available on the Library Gopher immediately upon receipt, whenever possible, with subsequent technical processing occurring promptly. Many titles will also be indexed for full text search access using WAIS (Wide Area Information Searches) during technical processing. Copies of files (i.e., issues) will be electronically transmitted by serials personnel to appropriate library units (e.g., Cataloging, Maintenance, Business Services, etc.) as currently is deemed necessary by the serials personnel. **Invoices should be paid through the Acquisitions and Business Services Departments as usual** based on confirmation by serials check-in personnel that the journal is being received.

Acquisitions concerns: Electronic journals will most likely be paid for "direct" and that department must have an invoice. However, the invoice can be an electronic message which will be printed for manual filing whenever necessary. According to state of Virginia guidelines, our journal vendor must be in the 'loop' if it is handling a journal to which we wish to subscribe. Business Services does not require a printout or an electronic message/invoice; they work from the information added to the payment database by personnel in the Acquisitions Department.

Standard operating procedures require that any paid subscriptions must be handled by the vendor with which the Libraries have contracted. However, electronic journals that do not have subscription fees can be processed entirely in-house and should be done so as is our current practice for other serials that are *free*.

Transition Phase

As previously mentioned, electronic journals are still distributed and accessed through the mainframe system. In 1993 this system began being phased out in favor of the Library Gopher. **All texts residing on the mainframe should be transferred immediately to the Libraries' Unix server, which supports the Library Gopher.** *[This has been fully*

accomplished.] They should be replaced by a short script which executes a CMS Gopher client to connect to the Library Gopher and display the electronic journal list.

Currently, EJACQ and EJPOST are the two accounts utilized by Library Automation staff to retrieve and post electronic journals. Serials Receiving staff will use EJPOST for posting, and EJACQ to retrieve journals from remote sites. These accounts now exist on the Library Gopher. EJACQ@VTVM1.cc.vt.edu, which was the account originally used to subscribe to electronic journals distributed via Listserv, has been discontinued and it has been replaced by EJACQ@NEBULA.lib.vt.edu. Under the EJACQ account user directory will be separate directories containing information about each journal, such as the location of the Listserv list and subscription information. This information is usually returned by the Listserv software when a new subscription is accepted. EJPOST will be given exclusive "write" access to the electronic journal portion of the Library Gopher menu (/home/gopher-data/library/ejournals) as well as "read" access to EJACQ. **Training, guidance, and assistance must be provided to serials receiving staff by knowledgeable staff currently in Library Automation**. Staff who are responsible for electronic journal posting must become familiar with Listserv, Gopher, and FTP.

Some electronic journals will lend themselves to automatic retrieval. Further development needs to be done to make this a reality, and this may ultimately be possible only for those journals delivered via Listserv lists. However, activities such as moving text from mail to the Gopher menu, reindexing for WAIS access, and even providing some interactive retrieval such as through FTP can be automated. Retrievals which normally require interactive sessions such as FTP and Gopher could be automated using the EXPECT scripting system, already installed on the Library Gopher server.

Each journal for which automated retrieval will be possible will require a good deal of initial set up to do so. The site from which it is retrieved must remain constant, file names must be at least partially identical, and it is preferable for the title to have a regular delivery time (such as daily or weekly). The first targets for automation should be journals delivered frequently as significant labor savings can be attained by automating their receipt. An automated system should be able to retrieve the entire issue, determine if all articles are present, correctly insert the issue into the Gopher, reindex if necessary, and notify the appropriate receiving staff when it finishes or send an error message to technical support personnel for the Gopher if a problem is encountered. **The task force recommends that the work necessary to automate receipt and posting be completed as soon as possible to reduce the work load for Serials Receiving staff.**

CHIP

When *CHIP* was first selected for the Libraries' electronic journal collection, Library Automation was asked to develop a system for automatically retrieving and posting the issues. (See Appendix G for an article originally posted to VPIEJ-L and PACS-L based on those procedures.) The main reason that this system was not implemented was due to some dissatisfaction with the search mechanism. Indeed, the system ultimately developed for *CHIP* is easy to use and provides user-friendly search access to the articles. However, it is

much more costly to maintain than the current system and it is available to a smaller number of readers, those who have accounts on VTVM1.

***CHIP* should be migrated to the same Gopher system proposed for all other electronic journals to make it more accessible and more affordable for the Libraries.** It must not become a model of electronic journal processing. The current files should be dumped to plain text files and moved to the Library Gopher where a menu can be constructed for them. While it is arguable that some fine access to the articles might be lost, this has not been tested. It is certain that the potential audience for *CHIP* accessible on the Library Gopher will be many times what it could ever be through the current mainframe system. It should soon be possible to provide a more refined search mechanism (free WAIS with Boolean search) than was available when *CHIP* was initially added.

Internal Processing: Bibliographic Control

The task force recommends that there not be substantive changes to the bibliographic control-related recommendations of the previous task force. A revised VTLS local note (MARC tag 590) about how to access electronic journals should be implemented by the Serials Group personnel. The note on the record for each electronic journal should be the same: "This journal is also available electronically from the Library Gopher at Nebula.lib.vt.edu; log in as 'lib.'" This note is repeated on the holdings screen (MARC tag 866 b0 ǂ62). This duplication is necessary to prevent OPAC users, so far as is possible, from assuming that these are typical paper journals available on library shelves.

The task force recommends that the Head of Library Automation contact VTLS Inc. and request that it add field 856 to MARC records so that a Uniform Resource Locator (URL) (and/or its successor, the Universal Resource Name, URN) can be added to supply the links that eventually can be implemented between an OPAC record and the electronic journal it describes.

It would be most appropriate for electronic journals that are described in VTLS to be directly accessible from the online bibliographic and holdings records. This is currently not possible, but perhaps when the Libraries install the Z39.50 VTLS software and installs the VTLS InfoStations, we will have the opportunity to provide these links on a limited number of on-site library terminals. If the Libraries decide to provide World Wide Web access to electronic journals, then some limited cut and paste capabilities from a URL in the VTLS bibliographic and/or holdings records to Mosaic and other information clients which understand the URL can also provide more direct OPAC-to-electronic journal access. WWW access is available through the Libraries' home page (http://vatech.lib.vt.edu) which links to the Gopher, but procedures need to be created for this format.

Internal Processing: Library Gopher Maintenance

Some policy decisions yet to be made about the display of electronic journals on the Library Gopher include:

* List the most current issue available first/at the top of the menu; i.e., in reverse chronological order.
* Do not display file names, such as "allen.cat-v23n3.txt." When describing articles available in a particular issue, include the (first) author's name (last name first up to 12 characters) followed by the full title whenever possible, such as: Allen, Betty, Students in Higher Education: Nontraditional Student Retention.
* Add a copyright warning to each of the two top level Gopher menus.

For some current and specific maintenance needs, see Appendix H.

Copyright

It is the unanimous opinion of the members of the task force that **copyright warning statements should accompany each journal that University Libraries make available through any system**. We recommend that the two top levels of menus on the Library Gopher have the selection (in addition to titles or volumes) "COPYRIGHT."

A difference between VM1 access to electronic journals and the Library Gopher is the earliest point at which readers can view the copyright warning statement. On VM1, display of the copyright warning precedes access to any electronic journal. With Gopher, this statement can be presented as a menu selection. The task force feels that this will to be equally effective to readers on either system, especially since each electronic journal usually has its copyright statement. The display could look like this:

Gopher Menu [top level]
COPYRIGHT [*** READ ME***] WARNING
Community Services Catalyst
Journal of Technology Education
Journal of Veterinary Medicine
Virginia Tech Spectrum

Gopher Menu [second level]
COPYRIGHT [*** READ ME***] WARNING
Community Services Catalyst
Search Catalyst
Volume 33 number 1 Fall 1999
Volume 33 number 2 Winter 2000
Volume 33 number 3 Spring 2000
Volume 33 number 4 Summer 2000

> The copyright law of the United States (Title 17, United States Code) governs the making of reproductions of copyrighted materials. A reproduction is not to be "used for any purpose other than private study, scholarship, or research." If a user makes a reproduction for purposes in excess of "fair use," that user may be liable for copyright infringement.

Whether or not each journal and/or article has a Copyright, it is appropriate for University Libraries to present a copyright warning statement similar to our postings at library photocopy machines.

Administration of Electronic Journals on the Library Gopher

We recommend that the Scholarly Communications Task Force become a standing committee. Its purpose would be to keep University Libraries aware of access issues regarding electronic journals, while avoiding the considerable lag that resulted when problems arose between the time of the implementation of the recommendations of the Task Force on the Electronic Journal and the present implementation on the Library Gopher.

The current task force sees the need for someone or a small group to serve in a perhaps ad hoc capacity to advise and make recommendations regarding continuing developments in the various aspects of electronic journals. Since the membership of the task force includes the Libraries Gopher Administrator and the Serial Group Coordinator, it seems logical that they would be in a position to handle problems ad hoc. and confer with the other members of the task force whenever necessary. The Libraries should never again be in the position of dropping access to a title because there was no one to address a particular problem.

For example, if there had been an advisory group when problems arose, such as the numbering changes in *Psycoloquy*, the Libraries might have avoided the lapse in access to current issues. We might also have had a forum for discussing what to do when an editor of an electronic journal asked that we limit access to our university community, rather than discontinuing our subscription. These are just a few of the problems that might have been resolved by having a standing advisory group.

There needs to be a small group to which questions can be directed and which can make decisions about how to handle problems so that the Libraries can avoid some of the gaps/lapses in our current electronic journals. *[LAC agreed that the Scholarly Communications Task Force had the expertise among its membership to resolve these issues appropriately.]*

What Should Happen Next? *[LAC agreed on May 19, 1994 that these recommendations should be implemented.]*

Upon the acceptance of the recommendations in this report, and the directive for implementation by the Interim University Librarian, the Scholarly Communications Task Force suggests that:

1. Library Automation should complete the work necessary to implement automatic receipt and posting for a journal as a proof-of-concept project.

2. The expert staff in the Library Automation Department should finish migrating all issues of every electronic journal currently on VM1 to the Library Gopher. When this is completed, Serials Receiving staff should be trained in all aspects of electronic journal subscription, receipt, and processing as described in the procedures in Appendix E. *[The Serials Adds Clerk will perform these functions until internal changes in the Continuations Management Team have been fully implemented, i.e., filling vacancies and integrating check-in and binding functions.]*

3. Personal subscriptions by individuals should be transferred to the Libraries account (e.g., Beagle's *ALAWON* and Kriz's *CHIP*). [*ICPSR* can only be delivered to/retrieved by the campus representative.]

4. Serials Receiving staff should receive further training and should begin subscribing to all future titles, and to receive and forward all future issues.

Future Public Service Issues

1. The Scholarly Communications Task Force endorses the work of the Gopher Implementation Team and recommends that it assume responsibility for the Library Gopher having a prominent place in any future campus-wide information service (CWIS) in order to ensure easy, logical access to electronic journals and other electronic resources.

2. Evaluation of the effectiveness or 'usability' of the electronic journals provided on the Library Gopher can be facilitated through the use of an online survey. The same small group that is designated to have oversight of electronic journals on the Library Gopher could develop an online survey that queries readers about this service. *[LAC recommended that the Scholarly Communications Task Force should develop this survey instrument.]*

3. Reports from log files can be extracted from Gopher and made available to those interested in periodically reviewing search and retrievals of electronic journals. Appendix I contains an example of the type of information that is logged by the Gopher server when a user accesses an electronic journal).

4. The Scholarly Communications Project should publish this report.

Conclusion

University Libraries have gained three year's experience processing, storing, and providing access to electronic journals. Because the scholarly community has so readily accepted electronic journals distributed through the Internet, the task force members did not feel it was necessary to address whether or not to provide access to them. Further, because no other single source is as quick or as reliable (both in the short and the long term) as our own, we did not dwell for long on the question of "access versus ownership." In this report the Scholarly Communications Task Force recommends local improvements to the growing body of electronic journals.

It was appropriate in 1991 that the Libraries decided not to wait for others to find solutions, or, indeed, even discover the problems with electronic journals. This was recently reconfirmed through a phone call from ARL and e-mail from a library school class looking for information and reports about electronic journals. Virginia Tech's University Libraries are where they turn for information. While the task force readily admits that the current handling of electronic journals is far from definitive or perfect, we continue see the need to learn from our past, present, and future experiences. University Libraries are still on the forefront of electronic journal processing when compared to most other academic libraries. Our near-term approach to electronic journal problem solving has served us well and we believe it will continue to do so in this area.

In addition to access policies, we also addressed the issues of collection development so that our library could make informed decisions to expand the range of information options available to our user communities. However, the Libraries should also be willing to subscribe (at least for the short term) to some electronic journals if merely to learn from storing, providing access, etc. for the benefit derived from experimentation, if not for the subject relevance to our university community. *[LAC agreed that this could be done using the Libraries' materials budget.]* The Libraries can certainly afford to do this when subscription fees are reasonable and non-existent.

Appendix A

Consultants
to the
Scholarly Communications Task Force

Who	When	Why
Melissa Wilson	Nov. 9, 1993	VTVM1 access to e-journals; serials receiving processing
Harry Kriz	Nov. 30, 1993	*CHIP*, access to electronic journals
Beth Hanson	Dec. 14, 1993	Copyright for electronic publications
Alan Armstrong	Jan. 31, 1994	His role as Internet Librarian; Reference Department issues
Eleanor Garrison	Jan. 31, 1994	Payment issues
Brenda Pratt	Jan. 31, 1994	Serials receiving processes
Bruce Heterick/Faxon	Jan. 31, 1994	Vendor services; e-mail communication
Tamara Kennelly	Feb. 15, 1994	Archiving, VT publications
Stephen Zietz	Feb. 15, 1994	VT publications, Special Collections materials
Brenda Hendricks	Feb. 22, 1994	Training

Appendix B

Library Gopher main menu:

```
                    Internet Gopher Information Client v1.02

                            Root gopher server: nebula

      1.  Virginia Tech Library System (VTLS) <TEL>
      2.  Library Hours and Directory/
      3.  Library Information and Requests/
-->   4.  Electronic Journals/
      5.  Databases/
      6.  Holdings and Electronic Resources/
      7.  Library Catalogs/
      8.  Other Internet Resources/
      9.  Chronicle of Higher Education /
      10. Search University Libraries Gopher <?>



Press ? for Help, q to Quit, u to go up a menu                    Page: 1/1
```

Electronic Journals submenu:

```
                    Internet Gopher Information Client v1.02

                                Electronic Journals

-->   1.  ALA Washington Office Newsline/
      2.  Community Services Catalyst/
      3.  ICPSR Bulletin/
      4.  Journal of International Academy of Hospitality Research/
      5.  Journal of Technology Education/
      6.  New Horizons in Adult Education/
      7.  Newsletter on Serials Pricing Issues/
      8.  Postmodern Culture/
      9.  Psycoloquy/
      10. Public-Access Computer Systems Review/
      11. Search Current Cites <?>
      12. Virginia Tech Spectrum/



Press ? for Help, q to Quit, u to go up a menu                    Page: 1/1
```


BEST COPY AVAILABLE

Appendix C

Electronic Journals on CICNet

Gail McMillan reported to the following to the Interim University Librarian, Joanne Eustis, at the end of March 1994:

I've looked at the CICNet Gopher and found that our titles and holdings duplicate CICnet's only for the following:

ALAWON
Catalyst
JIAHR
Psycholoquy

We have the following journals that CICNet doesn't have:

Electronic Journal of Communications
Journal of Technology Education
CICNet has ONLY v.3, no.2
New Horizons in Adult Education
Newsletter on Serials Pricing Issues
Postmodern Culture
It looks like CICNet has only 1990-1992, but it's not clear from the numbering.
Public Access Computer Systems Review
Search *Current Cites*
Virginia Tech Spectrum

The following Scholarly Communications Project's publications (also not available at CICNet) will eventually be available also through the Library Gopher:

Modal Analysis abstracts
Journal of Fluids Engineering databank

Because of these findings, as well as for several other reasons, a link from the Library Gopher to CICNet is not a satisfactory substitute for complete storage on an in-house server.

Appendix: SCTF Report

Appendix D
Draft
How to Access Electronic Journals Posted by the University Libraries

Via INFO journals available:

ALAWON - ALA Washington Office Newsline
Community Services Catalyst
Electronic Journal of Communication
Journal of the International Academy of Hospitality Research
ICPSR Bulletin
New Horizons in Adult Education
Newsletter on Serials Pricing Issues
Postmodern Culture
Psycoloquy
Public-Access Computer Systems Review

1. Follow your normal procedure to connect to **vtvm1**.
2. Enter **INFO LIBRARY E-JOURNL** at the **Ready;** prompt.
3. Select the desired title by moving the cursor to the appropriate entry; press ↵__(**Enter** or **Return**).
4. Select the desired issue and article by moving the cursor to the appropriate entry; press ↵__(**Enter** or **Return**).
5. Follow directions on the screen for printing individual articles; downloading capabilities are not available.

Via Library Gopher journals available:

ALAWON - ALA Washington Office Newsline
Community Services Catalyst
ICPSR Bulletin
Journal of the International Academy of Hospitality Research
Journal of Technology Education
New Horizons in Adult Education
Newsletter on Serials Pricing Issues
Postmodern Culture
Psycholoquy
Public-Access Computer Systems Review
Virginia Tech Spectrum

•IF you have client software available

1. Open a gopher connection using the capabilities provided by your client. Address: **nebula.lib.vt.edu**

2. Follow normal gopher procedures for retrieving and downloading specific articles.

NOTE: Procedures will vary depending upon your client software.

•IF you don't have client software available
Using the CBX or inbound modem pool:

1. Follow your regular procedure to obtain the **CALL, DISPLAY OR MODIFY** prompt.

2. Connect to vttelnet using this command: **c vttelnet**
   Press ↵__(**Enter** or **Return**) several times.

3. At this prompt
   vttelnet>
   enter the telnet command followed by the gopher address, as follows:
   telnet nebula.lib.vt.edu
   Press ↵__(**Enter** or **Return**).

4. At this prompt
   login:
   log in as
   lib
   Press ↵__(**Enter** or **Return**).

5. When the gopher menu appears, use the number key to select the Electronic Journals menu option. (Arrow keys or letter keys may allow you to scroll through menu options, depending on your hardware configuration.)

6. To save a file, enter **s** (lower case required) and follow the instructions that appear. *[This option did not work at the time of this writing. The error message "Segmentation fault" appeared and we were bumped out to the vttelnet> prompt.]*

7. To download a file, enter **D** (upper case required) and follow the instructions that appear. *[This option did not work at the time of this writing. The error message "Segmentation fault" appeared and we were bumped out to the vttelnet> prompt.]*

8. To exit from the gopher menu, press **q**.

9. To exit from vttelnet, at the **vttelnet>** prompt, type **quit** and press ↵__(**Enter** or **Return**).

Appendix E

Electronic Journal Suggestion Form

Name: _____

Your E-mail Address: _____

Department: _____ **Date:** _____ **Phone:** _____

Information about the journal:

Title: _____

_____

Sponsorship: _____

_____

Audience (presumed beneficiaries at Virginia Tech):

_____

Frequency: _____

Method of receipt (check one)
- o Active (file retrieval must be initiated)
- o Passive (files will be distributed automatically)

Formatting (ASCII, Postscript, etc.): _____

Copyright and Licensing Requirements/Restrictions:

_____

_____

Any special considerations with implications for staff time:

_____

For follow-up or to provide additional information, contact Paul Metz, Principal Bibliographer (1-5663) pmetz@vtvm1.cc.vt.edu.

Complete Information Will Speed Processing

Send a copy of this completed form to Paul Metz, Director's Suite, University Libraries 0434

Appendix: SCTF Report

Appendix F

DRAFT

Receiving and Adding Procedures for Electronic Journals: Serials Receiving

[Gail Mc, Brenda, and Debbie Cash created the following procedures for the receiving and adds processes to be carried out in the Receiving/Binding and the VTLS Maintenance teams. James Powell edited those procedures and his suggestions are included in this draft.]

Electronic journals will be processed as much like other serials as possible. Therefore, bibliographic, holdings, and check-in records will have standard information, except as noted here.

Procedures we think check-in personnel (CIP [pronounced "sip"] i.e., Shirley Moede) may generally follow for

A. Automatic receipt and posting of an issue of an e-j to Nebula

1. Publisher sends issue
   a. to the e-mail account from which the subscription request was sent
   b. EJPOST should be subscription address for journals distributed in their entirety by listserv-type method.
   c. University Libraries subscription address will be ejpost@nebula.lib.vt.edu
2. When received by EJPOST
   a. issue will be automatically added appropriately to electronic journals on the Library Gopher
   b. note will be automatically sent to CIP (Check-In Personnel, i.e., SMOEDE) telling her which issue of which title was received. (See 6. below re issue doesn't arrive by expected date.)
3. CIP checks Library Gopher to verify issue is accessible to readers and everything else Receiving/Adds usually do when they receive an issue of any other serial (e.g., verify that title has not changed, corporate body name remained the same, frequency of publication will continue, etc.)
   a. If there is a title change, it is most likely (per JP) that the issue will be added to its previous title's holdings on the Library Gopher.
   b. CIP will follow standard procedures for these changes and others that serials frequently go through.
   c. CIP will notify Library Gopher Administrator (JP) of title changes so that that person will separate issues into the appropriate title menus.
4. CIP adds holdings to VTLS (and creates check-in record if needed).

5. CIP modifies "expected" date for next issue.
   a. so that the system will prompt her if issue does not arrive by expected date
   b. according to publisher's suggested frequency of publication (Check-in record will also include e-mail address of publisher.)
6. If an issue is not received by the expected date and VTLS reminds CIP:
   a. CIP looks on Library Gopher and finds that an issue was received but she was not notified.
      i. Add holdings to VTLS and continue with usual procedures.
      ii. Tell Library Gopher Administrator (LGA) that CIP did not receive automatic, system-generated notify of issue receipt
      iii. LGA will resolve the problem.
   b. CIP determines that an issue really wasn't received
      i. Send e-mail message to publisher inquiring about whether or not the issue was sent.
      ii. Follow normal check-in procedures, based on publisher's response.

B. Automatic receipt of a notice that an issue of an e-j is available for retrieval:

1. Publisher sends issue
   a. to the e-mail account from which the subscription request was sent
   b. EJACQ should be subscription address for journals that are **NOT** distributed in their entirety by listserv-type method.
   c. University Libraries subscription address will be ejacq@nebula.lib.vt.edu.
2. Serials Adds Clerk (SAC) retrieves issues: within one day of receiving notification that an issue is available.
3. Logs on to Library Gopher (currently know as Nebula) as EJACQ.
4. FTPs appropriate files to Library Gopher.
5. Once file transfer is complete, enters ls (el es) to list files just received, renames files using date of current issue as part of file name.
6. Makes new directory for latest issue and copy files into this directory.
7. Names and numbers each file so that menu list is meaningful to e-j readers; gives issue appropriate enumeration and chronology; reorders collection of issues so that latest is at the top of the list.
8. Looks at list of electronic journals to see if the latest issue is placed correctly in the list of issues available, that the captions and enumeration display correctly, that the issue is retrievable and readable.
9. Quits this level of command; indexes not only the issue just received, but to incorporate this issue into the entire index for the that journal.

10. Performs a word search to verify that issue was indexed.
11. Logs off Library Gopher.

C. **Serials Adds Clerk (SAC) retrieves issues within one day of "knowing" (e.g., *Spectrum*) or being notified that an issue has been published.**

1. Logs on to Borg (a.k.a., home system) and removes files from previous issue.
2. Logs on to VTVM1 where the current issue to be retrieved resides.
3. FTPs appropriate files to home system.
4. After file transfer is complete, logs off VTMV1 and returns to home system.
5. Enters LS to list files just received; renames files using date of current issue as part of file name.
6. Makes new directory for latest issue and copies files into this directory.
7. Names and numbers each file so that menu list is meaningful to e-j readers; gives issue appropriate enumeration and chronology; and reorders collection of issues so latest is at top.
8. Looks at list of electronic journals to see if the latest issue is placed correctly in the list of issues available, that the captions and enumeration display correctly, that the issue is retrievable and readable.
9. Quits this level of command, and indexes not only the issue just received, but to incorporate this issue into the entire index [as is current practice for *Spectrum*].
10. Performs a word search to verify that issue was indexed.
11. Logs off home system.

Notifies

Whether the e-j is automatically sent or must be retrieved, we hope that electronic journals will not have VTLS "Notifies" attached to them. However, CIP and SAC could establish a "names" file as a routing slip and with one e-mail message notify each person on the list that the latest issue has been received.

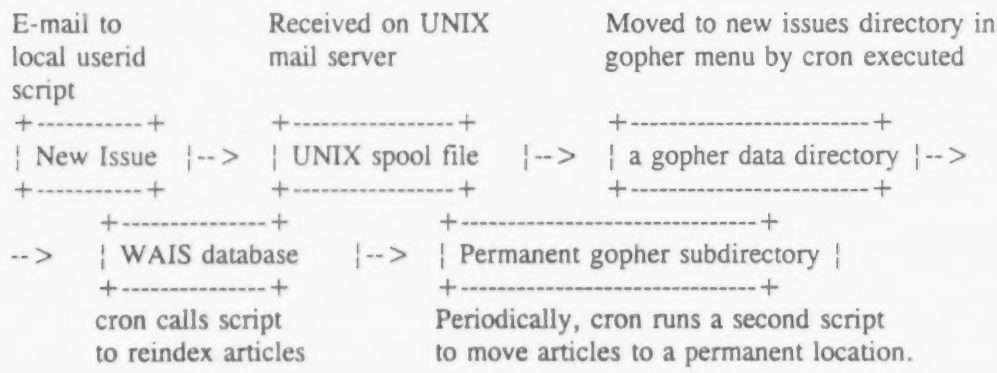
Appendix G

Automated Acquisitions of Electronic Journals: A UNIX Based Approach
James Powell

Automatic acquisition of electronic journals in libraries is critical to the success of electronic journals. I first realized this last fall when I was asked to put together a system to support an electronic newsletter that was updated almost daily. Upon review of our existing system, I found that it simply would not be practical to acquire a daily newsletter in this way. Having watched the growth of interconnected distributed systems such as gopher and World-Wide Web, it seemed to me that this is the way electronic acquisitions should work: acquisition of an electronically distributed journal or article collection should be automatic. However, most electronic journals received at the University Libraries of VPI & SU are received by a special account via electronic mail and moved from that account to a simple menu system. The entire system is based on a help facility for an IBM mainframe, but the essential ingredient is a knowledgeable person to manage the data.

The system I developed is extremely simple to implement on any UNIX system and requires no human intervention once it is set up. It uses UNIX mail, gopher and WAIS along with a few simple shell script programs to manage new issues automatically. Here is how it works:

A userID is setup for each new electronic journal to be received. A new directory is added to the gopher file structure to accommodate the new journal, and any back issues are added at that time. In this menu, two special menu items are required, one for browsing new issues and a second for searching the current article collection using WAIS. Using a shell script run by the UNIX cron program, any new mail for the electronic journal userid is collected nightly and moved to the gopher file system. The WAIS index for this title is also rebuilt so that the new articles or issues are incorporated into the database. At some predefined period of time, a second shell script is run by cron, moving an "expired" subset of the new data to a permanent location in the gopher menu.


E-mail to local userid script
Received on UNIX mail server
Moved to new issues directory in gopher menu by cron executed
New Issue
UNIX spool file
a gopher data directory
WAIS database
Permanent gopher subdirectory
cron calls script to reindex articles
Periodically, cron runs a second script to move articles to a permanent location.

Appendix: SCTF Report

A system like this could be extended further. For example, information about the frequency of publication could be included in a program. If issues lapsed, acquisitions could be notified by electronic mail. Likewise, acquisitions could be notified of the arrival of each new issue by e-mail.

Many assumptions were made:

1. Journals received were distributed by electronic mail.
2. Libraries would be willing to use WAIS for indexing the text. (Alternately, if they have a system running NeXTSTEP, they can use its indexing system. However, the main advantage of the NeXT indexing system is its support of Boolean searching which is now available in some versions of WAIS).
3. Acquisition would take place on UNIX platforms. (It is highly dependent upon the automated cron program and UNIX mail.)
4. The library would be using a gopher menu system for end-user access.

As a result of these assumptions, the methods discussed may work in part or completely on non-UNIX systems.

As an information provider, I know that we need to help libraries lead the way in the early years of electronic publishing. Placing more of the workload on the computer makes sense whenever possible. Automating the electronic journal acquisition process is one way libraries can reduce the perceived burden of managing a new resource that some might consider exotic. Automatic acquisition also provides the full benefits of electronic journals to the end-user, such as timeliness and full text searching capabilities. Resolving this problem for libraries will serve to make electronic journals a more attractive format for end-users.

Appendix H

Recommendations about Display of Electronic Journals on the Library Gopher

1. Journal titles match the titles in VTLS. See for example: *Newsletter on Serials Pricing Issues*; it has two titles in VTLS but only one the Library Gopher/VM1 menus.

2. There should be a note with the previous titles telling readers that a title has changed and a link to and from the next title.

3. List issues in reverse chronological order with the most recent issue first (e.g., *Catalyst* and *JTE*).

4. Keep up-to-date or include in menu of available issues brief note re title ceased, discontinued, etc.
   a. Current issues are needed for *New Horizons in Adult Education*, *ALAWON*, and *Postmodern Culture*.
   b. What about reviving *Electronic Journal of Communications* with restricted access?

5. List contents of an issue by author (last name first, only first author if multiple authors] and title.

Appendix I

Excerpts from the log files of the Library Gopher

Here a user from Internet address bootp-175.pvcc.cc.va.us connects to the library gopher and selects an issue of *New Horizons in Adult Education*. The first five columns tell us the date the user connected to our machine (EST), the seventh column is the Internet address of the system the user connected from, and the remainder of the line tells us what the user requested. In this example, we can see all four transactions together in the log file. In some instances, the log file will contain intermixed transactions as several users interact with our Gopher simultaneously:

```
Mon May  2 11:36:34 1994 11460 bootp-175.pvcc.cc.va.us : Root Connection
Mon May  2 11:36:43 1994 11461 bootp-175.pvcc.cc.va.us : retrieved directory /ejournals
Mon May  2 11:36:55 1994 11462 bootp-175.pvcc.cc.va.us : retrieved directory
/ejournals/new_horizons
Mon May  2 11:37:19 1994 11463 bootp-175.pvcc.cc.va.us : retrieved file
/ejournals/new_horizons/nnae0101.helpnhae
```

Another user connects from Colorado (spot.colorado.edu) and selects an issue of the *ICPSR Bulletin*:

```
Tue May  3 11:46:39 1994 17180 spot.Colorado.EDU : retrieved directory /ejournals
Tue May  3 11:50:13 1994 17208 spot.Colorado.EDU : retrieved directory /ejournals/icpsr
Tue May  3 11:50:36 1994 17209 spot.Colorado.EDU : retrieved file /ejournals/icpsr/icpv14n1.helpicp
```

Still another user from Alaska (aurora.alaska.edu) selects an issue of the *Newsletter on Serials Pricing Issues*:

```
Sun May  8 05:59:58 1994 2240 aurora.alaska.edu : retrieved file
/ejournals/serials_pricing/nspins63.helpnspi
```

SYSTEMS AND PROCEDURES EXCHANGE CENTER

SELECTED READINGS

ASSOCIATION OF RESEARCH LIBRARIES

OFFICE OF MANAGEMENT SERVICES

Selected Readings

Abbott, Anthony. "Modeling the Electronic Relationship." *Computers in Libraries* 12 (Dec. 1992): 14-15.

Alexander, Adrian W. and Julie S. Alexander. "Intellectual Property Rights and the 'Sacred Engine': Scholarly Publishing in the Electronic Age." *Advances in Library Resource Sharing* 1 (1990): 176-192.

Amiran, Eyal, Elaine Orr, and John Unsworth. "Refereed Electronic Journals and the Future of Scholarly Publishing." *Advances in Library Automation and Networking* 4 (1991): 25-53.

Amiran, Eyal and John Unsworth. "Postmodern Culture: Publishing in the Electronic Medium." *The Public-Access Computer Systems Review* 2, no. 1 (1991): 67-76. (To retrieve this article, send an e-mail message that says "GET AMIRAN PRV2N1 F=MAIL" to LISTSERV@UHUPVM1 or LISTSERV@UHUPVM1.UH.EDU)

Arms, William Y. "Scholarly Publishing on National Networks." *Scholarly Publishing* 23 (April 1992): 158-169.

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